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PSYCHOLOGY

VOL. III.

PSYCHOLOGY

THREE VOLUMES

BY

ANTONIO ROSMINI SERBATI

VOL. III.

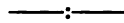
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		ERRATA.	CORRIGE.
PAGE	LINE		
15	1	of the functions	on the functions
37	14	spiritual cases	spiritual causes
95	35	in the apoplexy	is the apoplexy
291	—	Heading of Preface omitted .	<i>Nec tamen in tantum falsos esse dicendum est, qui hæc senserunt, ut omnino nihil dixerint; nam et sanguine simul, et calore, et spiritu vivimus. Sed cum con- stet anima in corpore his omni- bus adunatis, non expresserunt proprie QUID ESSET, quia tam non potest exprimi, quam videri.</i> Lactantius, <i>De Opif. Dei</i> , c. xviii.

PART III.



L A W S O F A N I M A L I T Y .

TO WHICH IS ADDED

A CRITICO-HISTORICAL SKETCH OF THE OPINIONS OF
PHILOSOPHERS ON THE NATURE OF THE
HUMAN SOUL.

LAWS OF ANIMALITY.

ONE BOOK.

1780. What we have said in the preceding Book with reference to the laws that guide the rational principle in its action might suffice for the purpose which we had in writing this work. But the animal part, which surrounds human intelligence—like a series of bands wrapping it round and confining it everywhere, and making it wonder at itself, and ask why, since it is free in its essence (all intellect resides in the infinite), it is so circumscribed and checked in its flight by a material, brute element—this animal part, I say, is so mysterious, so hard to investigate, so manifold, yea, so inexhaustible, that we cannot help turning back to it here at the end, and trying, if we can, to add a little more clearness, and a little new development to what we said about it. Otherwise the reader might think that as yet he has not even found the clue to guide him through the great maze.

And since animality, like every other finite being, has two sides, a *passive* side formed of *feelings*, and an *active* side formed of *instincts*,* we shall let alone the former as already sufficiently discussed, and go on with the treatment of the latter, tracing out in greater detail the laws which govern the instinctive activity of the animal.

This activity we have already divided into two great instincts, which we have called the *vital instinct* and the *sensual instinct*.† Let us now, therefore, investigate, as carefully as possible, the laws of these two instincts and the modes of operation which follow the action of those laws.

* *Anthropology*, 47-49.

† *Ibid.* 367-498.

CHAPTER I.

LAW OF THE VITAL INSTINCT.

ARTICLE I.

Exposition of the Law.

1781. *Being* is the contrary of *naught*. Hence the concept of a being involves the concept of an act, and the act whereby a being is, is the contrary of the act whereby it is annihilated. If, therefore, a being is, we must suppose that it has an act which posits it and makes it resist annihilation. This is the virtue of self-preservation which every being has.

1782. The act whereby a being is posited and necessarily resists destruction, has as its term the *form* of the being itself. Why one act should terminate in one form, another in another (producing the diversity of beings), is a fact for which *Philosophy* can find no other reason than the free act of the Creator.

1783. But if the act whereby a being is posited is that whereby the special form of the same being is posited, it follows that the tendency of this act must be to posit that form in the most perfect manner; because the more incomplete the form posited, the less would the being exist, and the more closely would it approach to naught, to which the act, as we have said, is necessarily repugnant.

1784. Hence the reason why the act does not posit the form of the being completely cannot come from the act whereby it subsists, but only from some cause foreign

to it, preventing it from reaching simply and completely its proper form, to which it tends.

1785. Let us apply these ontological and cosmological principles to the animal being.

The act whereby the animal being and its form are posited is what we have called *vital instinct*, the *form* of the animal on the other hand is the fundamental feeling, a determination and completion of the same act. Hence we arrive at the following *Law of the Vital Instinct*:

“The Vital Instinct tends to bring into being the greatest possible fundamental feeling.”

1786. We must not, of course, suppose that this instinct, to which we ascribe the production of the fundamental feeling, exists before having produced it. No; if there were no feeling there would be no vital activity. But given a *fundamental feeling*, mentally we can distinguish within it the activity which posits and causes it to be, from the feeling itself, as it were two elements, one active, the other passive, constituting one indivisible feeling, and this is a real distinction.

ARTICLE II.

Functions of the Vital Instinct.

1787. Hence the functions of the vital instinct are necessarily the following:

1788. *First Function*—To preserve the fundamental feeling by continually producing it—*Animating and preserving function*. The animal, by means of this function, which is the one whereby it is, resists destruction, opposes itself to dissolution, is in a continual conation to preserve itself. Whatever opposes the conation without altogether overcoming it, gives rise in the feeling to a disagreeable modification, which is called *pain*.

1789. *Second Function*—To actuate the fundamental feeling so that it may have the greatest possible continuous *extension*—*Diffusive* or *aggregative function*, manifested in nutrition, &c.

1790. *Third Function*—To arrange and compose the fundamental feeling in such a way that it may have the highest degree of *intensity* or stable excitation—*Excitatory function*, and function accumulating feeling.

1791. *Fourth Function*, arising in consequence of the other three—To act upon the corporeal term, and so to impart to matter *animal organization*—*Organizing function*.

The reason why this function arises in consequence of the first three is obvious. Since the body, as we have seen, is the term of the animal feeling, if this feeling with its natural activity tends to preserve itself, to dilate itself, to render itself more intense, it consequently acts upon the extra-subjective body and produces in the matter of it internal and often imperceptible movements, which dissolve and recompose it, bringing its elements and molecules into those spaces which the feeling desires to occupy, through its instinct, which is to become greater, to posit itself in the fullest and most complete condition.

1792. Now the *organizing function* being only the three primitive functions in so far as they are considered with respect to the effects which they produce in the body and the matter of the body, it follows of necessity that this function must be distinguished into three moments, which are :

First, that which consists in an action exerted by the vital instinct on the body, its term, an action whereby it continually constitutes it the term of its fundamental feeling, and prevents it from separating from this feeling—*Resistance to death, Retention** (*rattenenza*).

1793. *Second*, that which consists in drawing foreign particles† within the range of its own feeling, for this purpose reducing them and assimilating them to the rest of the body,

* *Tonicity* seems to be an effect of *retention*, manifested in the solids of the living body.

† By foreign particles we mean those which do not present to us the phenomena universally recognized as belonging to life, without at the same time denying that they have an animation

of their own. Moreover, it should be observed that when we say that the vital instinct draws brute particles to itself, we do not mean to say that it acts *in distans*; indeed we cannot conceive any action exerted at a distance, but we will explain our ideas on this subject in the proper place.

arranging and composing them as they require to be—*Assimilation and Reproducibility* of the living parts.*

1794. *Third*, that which consists in the *motor-vital spontaneity*, in other words, in that virtue whereby the fundamental feeling, tending to preserve excitation and increase it more and more in order to reach its highest grade of intensity, aids and continues the movements excited in its term by external stimuli, so that through the perpetuation and augmentation of motion, its proper excitement may be perpetuated and augmented.

ARTICLE III.

Observations on the Functions of the Vital Instinct.

1795. The first function, that which posits and continuously reproduces the fundamental feeling, has not force enough to retain the body—its term—so as to prevent it from being acted on by an external principle which tends to withdraw this body from its activity. This want of power on the part of the animating and preserving function is worthy of notice. It gives rise to the distinction which we have drawn between *body* and *matter*. We have called body and matter the same being, but we have called this being body in so far as it is dominated by the feeling which renders it its term, and matter in so far as it is with-

* The subject of the *reproducibility* of living bodies as one of their special properties has been treated in Italy by Tommasini, Brera, Bufalini, Medici, Gallini, and all our modern physiologists and physicians. Dr. Luigi Emiliani, in his *Memoir*, crowned by the Italian Society of the Sciences, which has its head-quarters at Modena, in dealing with the thesis, "To determine whether the ideas of modern medical schools in regard to excitabilities and excitement are sufficiently accurate," &c., assigns to reproducibility the following laws:

First—Reproducibility does not act with the same energy at all ages.

Second—Living tissues, in a certain peculiar condition, can reproduce themselves when a portion of them is cut and carried off.

Third—In general, the degree of reproducibility is in inverse ratio to the so-called perfection of living bodies, that is, their organic composition.

Fourth—The degrees of reproducibility are different in different parts of the same living body.

Fifth—By means of this force, under certain conditions, there may be formed some new parts necessary to the development of organized bodies.

Sixth—Reproducibility may be injured and vitiated even to a remarkable degree at the same time that it causes increase. In this way there may be formed and developed parts differently textured and composed from those that naturally make up the body.

drawn from the power of that feeling, and allows itself to be moved by the foreign forces collected by us under the general name of *sensiferous*.

Since there is no absurdity in conceiving that there should be different degrees in the power whereby the sentient principle, as vital instinct, dominates its term, it is plain, that the highest of these degrees would be that whereby it disposed of the body so completely as to withdraw it from the action of all other *sensiferous* forces, or to render that action null and void.

While saying this, we wish the reader to observe that we do not intend here to enter into the question of the causes which limit the power of the vital principle over its own term, or the power it has of enlarging the same. We do not mean to assert, either that the virtue of the vital principle is in itself limited to a fixed measure, or rather, that it is in itself unlimited and indefinite, but afterwards receives a limitation from the conditions to which it is bound and which prevent it from displaying itself as far as it might, so that its development and greater or less expansion and, therefore, its manifestation of greater or less power over its term, would depend upon these conditions and not upon itself. This question we have touched upon elsewhere.

1796. The *diffusive function* and the *excitatory function* may come into collision, that is, when it happens that the feeling cannot diffuse itself, except at the expense of the accumulation and excitement. In this case the one impedes the other; and though it is difficult to lay down the precise laws which govern this collision, yet we seem to discover very clearly these two:

1° Inasmuch as the greatest natural excitement is the *best state*, the natural state of a fundamental feeling, it follows that the activity of the *diffusive function* increases or diminishes in proportion to the greater or less activity of the excitatory function.

1797. 2° If the excitatory function is weak, and the different stable excitements do not harmonize with each.

other, or beneficially influence each other, then the *diffusive function* is either not sufficiently subordinated to the *excitatory function*, or is not harmoniously directed by it. Hence there is disorder in the animal, and a tendency of one part of the continuous felt to separate itself from its whole.

1798. As to the last two *moments* of the organizing function, the third serves the second, because, among the other effects produced by it, there is this that it keeps the particles loosened so that they cannot harden, and thus causes the acceleration of that vortex which dissolves, assimilates, expels, favouring absorption and producing secretions and excretions.* And when I say that it keeps the particles loosened, I do not mean that it separates them so as to place them out of contact, but I mean that it diminishes and tempers their mutual gravitation, turns them and arranges them in such a way that they are in contact at fewer points, and so tends to make them round; I mean also that it keeps the pores, the passages, &c., suitably open.

* Those movements which produce the secretions and excretions were considered to be effects of the action of the soul by the school of Stahl, and one may read with much profit this famous man's dissertation, entitled *De Febris rationali Ratione* (Halæ Magdeb. 1701), in which he reduces the secretory and excretory movements to two classes, the *pulsation of the heart* and the *tone of the parts*. Of the former he says: "*Impelluntur humores, nempe sanguis, et cum eo lymphæ, et feruntur pulsu ad omnes partes porosas.*" Of tonic motion he says: "*Notanda est generalis illa duplex ejus administratio sive directio, secundum diversas corporis regiones*

cardinales, interiorem et anteriorem." The pulsation of the heart could not separate and drive so far in a different direction as the *tonic motion*: "*Quod quidem ita fit per partium transmittentium et emittentium tonum proportionate administratum, ut partes quidem tales ad proportionate admittendum et emittendum relaxentur atque patulæ reddantur; vicinæ vero aut conjugatæ, imò universæ reliquæ, contra ita stringantur, ut humores ab his ad illam quod excrementum emittere debet, undequaque proprimantur et magna copia atque brevi tempore ibi excrementa sua dimittere possint.*"

CHAPTER II.

LAW OF THE SENSUAL INSTINCT.

ARTICLE I.

Exposition of the Law.

1799. The *sensual instinct* is only a continued action of the *vital instinct*, and, indeed, of its third function, which we have called *excitatory*. The original motor-principle is the same in both, viz., the act which posits the form of the animal; but the proximate motor in the sensual instinct is the *feeling* after it has been brought into being, thus giving rise to a new activity. The sensual instinct, therefore, may be defined as "that movement of the vital instinct, which makes it cause a feeling already produced to become as intense and complete as possible by means of opportune excitements."

1800. But these excitements may be of two kinds: some may be stable, that is, continually repeated according to a fixed law (as happens in the case of the fundamental feeling of excitation), and others may be transient and accidental, modifying the fundamental feeling for a short time. Hence we give to the function which tends to preserve or reproduce stable excitement the name of *vital instinct*, and call *sensual instinct* that function which tends to procure for the stable feeling transient and partial excitements which give birth to the sensations and passions. This distinction is convenient and important to science, since stable excitation is, as we have said, what characterises the fundamental feeling, and therefore goes as an element to constitute the basis of the philosophical classification of animals, inas-

much as the determinate *form* of the animal ceases when its stable characteristic excitation ceases.

1801. Having premised these observations, we lay down the following as the *Law of the Sensual Instinct*:

"The sensual instinct tends to cause the partial and transient sensations which are roused in the fundamental feeling, in so far as they are pleasant, to become as great as possible, by means of transient stimuli and excitations."

ARTICLE II.

Functions of the Sensual Instinct.

1802. Consequently, in the sensual instinct we distinguish the following functions:

First Function, that of *sensual spontaneity*, whereby, as often as an external stimulus is applied to an animal so as to excite its feeling to a more perfect second act, that is, to a pleasant sensation, the sensitive principle aids this stimulus with its spontaneous activity, and increases and prolongs for itself the effect of the agreeable sensation (activity of the soul, concurring in all sensations).

1803. *Second Function*, that of *sensual propensity*, whereby the sensitive principle actuates and disposes itself to its agreeable second acts, through the synthetic animal force,* which, given an excitation (agreeable sensation), inclines it towards another of which it has a presentiment, as a completion of the first.

1804. *Third Function*, that of *sensual aversion*, which is the contrary movement to propensity, and is due to the synthetic-animal force, which, on a given propulsion (disagreeable sensation), disconcerts the sensitive principle, and imparts to it an attitude of shrinking with respect to the completion of the said propulsion of which it has a presentiment.

1805. *Fourth Function*, that of *sensual contra-spontaneity*, whereby, as often as an external stimulus is applied to the

* *Anthropology*, 416-498.

animal so as to propel its feeling, that is, to produce a painful sensation, the sensual principle struggles against the force of the stimulus, trying to retain the fundamental feeling in all its fulness, and along with it the particles to which it adheres and which are trying to separate from it or disorder it.

1806. *Fifth Function*, that of *sensual motor-spontaneity*—which is a consequence of the other four. To the four attitudes or movements of feeling enumerated above there corresponds an action in the animate body and its matter, in accordance with the principle already laid down, that “to all the modifications of feeling there are corresponding extra-subjective phenomena.”

1807. Hence, this last function, considered in its effects, has six moments, which are as follows :

First—It manifests itself in the attitudes and movements (small and great) which are produced in the extra-subjective animal body by the whole complex of those passions which may be united under the name of *concupiscent mobility*.

1808. *Second*—It manifests itself in all the attitudes and movements (small and great) which the extra-subjective body of the animal receives from the activity which it places in its actual pleasant sensations and passions, and which may be called *voluptuous mobility*.

1809. *Third*—It manifests itself in all those attitudes and impediments to motions, which the extra-subjective body of the animal receives from all that complex of passions which resists an unpleasant excitement, and in a certain dogged inertness ; all of which may be united under the name of *recalcitrant mobility*.

1810. *Fourth*—It manifests itself in the attitudes and movements (small and great) which are produced in the extra-subjective animal body by all that complex of passions, which, having a presentiment of the unpleasant result of a certain species of movements, exerts itself to determine contrary movements. This may be called *aversive mobility*.

1811. *Fifth*—It manifests itself in those attitudes and

movements (small and great) which the extra-subjective body of the animal receives from the effort which the sensitive principle makes to maintain itself in its intensity, and in its motion against the contrary external forces which impede it, an effort which may be called *wrathful mobility*.

1812. *Sixth*—It manifests itself in those attitudes and movements (small and great) which the extra-subjective animal body receives from the *sympathetic mobility*, that mobility which obeys the *imagination* and the thought, so that at the imagination of sad things there arise in the body movements which depress its forces, and the opposite at the imagination of glad things. And this is one of the sources of the disturbing forces of the animal nature.*

All these six moments have reference to effects which are manifested to external, extra-subjective observation, in consequence of the feeling which places itself in different attitudes and is considered the subjective cause of them. And these six classes of effects are always reducible to *movements*, because movements are the extra-subjective phenomena corresponding in the animal to as many *feelings*, which are the parallel subjective phenomena.

Now collecting all the functions and operations of the two instincts, let us place them clearly before the reader in the following Synoptical Table.

* *Anthropology*, 401-414.

VITAL INSTINCT.

<p>SUBJECTIVE EFFECTS which take place in the animal feeling.</p>		<p>EXTRA-SUBJECTIVE EFFECTS which manifest themselves in the body and its matter, that is, produce movement.</p>	
<p><i>First Function of the Vital Instinct:</i> Animation and Preservation.</p>	<p><i>Second Function of the Vital Instinct:</i> Diffusion.</p>	<p><i>Third Function of the Vital Instinct:</i> Excitation.</p>	<p><i>Fourth Function of the Vital Instinct:</i> Organization, or the faculty that moves elementary particles and molecules in order to organize them.</p>
<p>Stable excitatory faculty, which produces the Fundamental Excitation.</p>	<p>Transient excitatory faculty, which produces Sensations.</p>	<p>Moments of the Organizing Function.</p>	<p>(1) Retention, (2) Assimilation, (3) Motor Vital Spontaneity.</p>
<p>SENSUAL INSTINCT.</p>			
<p>FIRST (SUBJECTIVE) BRANCH <i>of the Sensual Instinct.</i></p>			
<p><i>First Function of the Sensual Instinct:</i> Sensual Spontaneity.</p>	<p><i>Second Function of the Sensual Instinct:</i> Sensual Propensity.</p>	<p><i>Third Function of the Sensual Instinct:</i> Sensual Aversion.</p>	<p><i>Fourth Function of the Sensual Instinct:</i> Sensual Contra-spontaneity.</p>
<p>SECOND (EXTRA-SUBJECTIVE) BRANCH <i>of the Sensual Instinct.</i></p>			
<p>Moments of the Motor-Sensual Spontaneity.</p>			
<p>(1) Conspicuous Mobility, (2) Voluptuous Mobility, (3) Recalcitrant Mobility, (4) Aversive Mobility, (5) Wrathful Mobility, (6) Sympathetic Mobility.</p>			

ARTICLE III.

Observations of the Functions of the Sensual Instinct.

1813. Since the sensual instinct with its activity seeks no other effect than to enjoy the transient excitement of feeling, it often, through its last function, that of motor-sensual spontaneity, produces in the body and its matter movements that oppose those which the organizing function of the vital instinct tends to produce. Hence the *motor-sensual spontaneity* often becomes a disorganizing principle, struggling against the principle of organization; and here is a second source of the *disturbing forces of the animal nature*.*

1814. Nevertheless, this disturbance would become impossible if the body were completely dominated by the vital instinct. This, we have already said, is not a thing that involves contradiction, and we will now add that this dominion belongs to the *ideal of animal life*, in other words, would be the *maximum of life*. Indeed, if the vital instinct were further to receive such vigour as to be able to hold fast the corporeal molecules so that no power could withdraw them from its grasp, or even if it were protected in such a way that no foreign force might withdraw them, there could no longer be any struggle between the vital and sensual instincts, and one of the results would be immortality.

1815. Here it will not be amiss to turn and cast a glance at the notions of Brown. What relation has *Brown's excitability* to the different activities which we have attributed to life? When we consider that Brown drew his concept of excitability from the effects produced by stimuli upon the living body, effects which, according to him, are *sense, muscular movement, thinking activity and emotions*, we cannot but be very much surprised to think how he could have maintained that the property of excitability in the whole animal machine is one and indivisible,

* *Anthropology*, 401-414.

so that it can differ in its different parts only in quantity. Is it not plainly demonstrated that stimuli do not cause the phenomenon of sensation (that is, if we stand by the testimony of consciousness, which alone has authority in this matter) in all parts of our living bodies? And as to thought, is it not absurd to attribute it to a bodily organ or to any living machine whatever?

The Scottish physician, therefore, confounds three very distinct classes of effects: 1° *Movement*, an extra-subjective phenomenon which manifests itself not only in the muscles, but in every one of the four tissues, the cellular as well as the vascular, the muscular as well as the nervous; 2° *Animal feeling*, a subjective phenomenon, which is not recognized by any extra-subjective observation, but only by the deposition of consciousness; 3° *Thought*, a subjective-objective phenomenon, which is likewise altogether withdrawn from external observation, and is revealed immediately by itself in the positing of consciousness. As to the *emotions*, these are consequences, partly of animal feeling and partly of thought, so that they are subdivided and arranged under these two heads. How is it possible, then, to collect and class as one property effects which are so different in their essence, and even stand in the most direct opposition to one another?

If then we wish to take *excitability* as meaning a single property belonging more or less to every part of the living body, we must restrict its meaning by making it merely the property which the living body has of moving with a particular movement of its own under the influence of stimuli, a property which might be called *contra-distention*. As to *sensation* it would, in this case, have to be recognized as simply a concomitant effect of the contractile-distensive movement, an effect which does not always follow that movement, but only when it is produced in a certain manner and in certain determinate parts of the body, which, on that account, are called sensitive. Finally, *thought*, so far from belonging to any part of the body, is something that adheres to no bodily organ; and we have

only to consider it, in order to see that it is altogether free from bodily concretion, and has less resemblance to movement than weight has to colour.

But if thought is roused on occasions when the contractile-distensive movement produced, not in all, but in certain determinate parts of the body, and not in all, but in certain determinate modes, brings sension into existence, it does not follow that thought is something similar or analogous to contra-distention. It is not even a concomitant of this, although it is usually a concomitant of sension, for the simple reason that sension supplies the *matter* of thought and excites the sensitive soul, which is likewise rational, to perform its own acts in the manner which we have elsewhere explained.*

It follows then that *Brown's excitability* can be nothing more than the property of contra-distention, since only in this case is it a homogeneous property, specifically the same in all parts of the animate body.†

1816. Having thus determined the rational sense of the excitability which we shall henceforth call extra-subjective, in order to distinguish it from the excitability of feeling, we will now answer the question which was put at the beginning. "What relation is there between the Brownian or extra-subjective excitability and the different activities attributed by us to the vital principle?"

It is clear, 1^o that extra-subjective excitability does not embrace all the properties and activities of the living body;

* See *New Essay on the Origin of Ideas*. *Passim*.

† *Brown's Excitability*, when thus defined, has the laws attributed to it by Professor Medici:

"The first is, that excitability reacts differently in the different tissues of the body.

"The second is, that this force requires powers or stimuli of different kinds to enable it to produce its effects.

"The third is, that it reacts with greater or less energy, according to the greater or less degree of force exerted by the stimuli.

"The fourth is, that it is thrown into

more lively action by the variety of the exciting stimuli.

"The fifth is, that in the ordinary operations of life it continually goes on decreasing, that is, reacting with less and less energy.

"The sixth is, that after the cessation, or even after a certain diminution of the stimuli, excitability returns lively and ready as before.

"The seventh and last is, that excitability reacts with a force inversely proportionate to the action of previous stimuli."

These laws, however, require to be determined with greater distinction.

2° that it must be looked for only within the sphere of those two functions which we have called, respectively, the *organizing function* and the *function of sensual motor-spontaneity*; 3° that, nevertheless, these two functions contain more than is contained in the extra-subjective excitability.

1817. Indeed in the organizing function there are three moments, which we have called *retention*, *reproducibility*, and *vital motor-spontaneity*. Now retention is something altogether different from excitability, not being, like the latter, due to external stimuli. It is merely the effort on the part of the vital principle to keep alive the molecules that are already alive and prevent them from being withdrawn from the sphere of its action. *Reproducibility* does indeed require stimulating matter to be assimilated to the living body; but the effect of the reproductive force is not merely the contractile-distensive movement, in which alone *extra-subjective excitability* consists, but is, moreover, the *assimilation* of the stimulating matter, which on ceasing to be a stimulus, is converted into a part of the living body, and so becomes itself excitable.* There remains the animal *motor-spontaneity*. This certainly requires continual stimuli, but it not only produces contraction, but at the same time causes a diminution of the reciprocal coherence of the molecules and elements of which the living body is composed in order to facilitate those internal movements which raise the grade of feeling. Hence animal motor-spontaneity has a double effect: 1° It makes the molecules and their elements lose that coherence which they would have, if the physical attractions and chemical affinities could act freely, and it also prevents them, I believe, from coming into contact in too many points—all this, as far as is necessary to facilitate

* To distinguish this kind of stimuli from those that remain merely stimuli, the name given to them by Dr. Luigi Emiliani, *reproductive stimuli*, seems well suited. This writer, in the *Memoir* already cited, says: "It is easy to understand that in order to have repro-

duction, it is not enough to possess that property which is calculated to produce it, but there must also be present the means for forming it; and these, from their effect, may be called *reproductive*."

the movements of the fundamental feeling. This effect is altogether different from extra-subjective excitement. 2° It seconds, augments and increases the excitatory movements of feeling. This second effect is merely that which belongs to *extra-subjective excitement*, but with a limitation which we shall explain further on.

Let us now come to the moments of the other function, which we have called *motor-sensual spontaneity*. We have distinguished six of these moments as so many mobilities, the *concupiscent*, the *voluptuous*, the *recalcitrant*, the *aversive*, the *wrathful*, and the *sympathetic*. Now all these kinds of movements may, we think, probably be reduced, as far as their form is concerned, to contra-distention. They may, therefore, in some sense, be referred to Brown's excitability, but in this case also with a limitation.

1818. This limitation is similar to that which we have just mentioned in connection with *motor-vital spontaneity*, and we must here explain it.

If we admit *extra-subjective excitability* as the only property of the living body, we ought to conclude that its effect, that is excitement, must be proportioned to the original stimuli, so that, when these cease, it also ceases. Hence there is no longer any room for *motor-spontaneity*, which we divided into two branches, the vital and the sensual; in other words, there is no room for that increase and continuation of movement which still goes on in the living body after the original stimuli have ceased. If, on the contrary, we admit that sensitivity is itself a power which produces extra-subjective effects, a power essentially distinct from, and prior to, excitability, then we understand how, when the external stimuli cease, movements may continue in the human body and succeed each other according to determinate laws, since in that case we have a principle to which we may properly refer these spontaneous movements. Now, the existence of these movements is undeniable, and those Italian physicians who have meditated on Brown's theory in the hope of perfecting it have recognized them, as is seen from the fact of their giving the name of

diathesis to that diseased condition, which does not stand in proportion to external stimuli, but runs a course of successive diseased processes independently of them.

If, then, we consider motor-spontaneity—the vital as well as the sensual—as a power excited and placed in a certain degree of orgasm by external stimuli, we may from this point of view fairly enough attribute to it Brown's property of extra-subjective excitability. But if we consider that its activity, so excited, goes on for some time by itself after the removal of the external stimuli, and displays itself in reciprocal actions, producing a series of states and affections of the human body, in which series the state which precedes is the cause of that which follows it, then we must recognize in motor-spontaneity an activity greater than mere extra-subjective excitability, and widely different from it.

If, moreover, we consider that the *vital motor-spontaneity* differs in degree in the different organs of the human body, and that the *sensual motor-spontaneity* is likewise variously distributed, and, as appears to us probable, and will be declared further on, does not preserve the unity of its principle, we shall find no difficulty in understanding that there should be diseased localities in the living body, a fact which has been elucidated by Professor Fanzago and other distinguished physicians, and which cannot be explained by Brown's universal excitability alone. In the same way we shall find light thrown upon those diseases which physicians term *irritative*.

1819. From all this it is plain that feeling must not be regarded simply as the effect of excitability and stimuli, as is done by Brown; but, on the contrary, it must be considered as the true cause of extra-subjective excitability, which, in our opinion, can be nothing else than an effect produced in the body by the activity bound up with feeling.

1820. Hence the series of causes and effects in all animal phenomena, divided into two great classes, the subjective and the extra-subjective, is disposed in this order:

1° Fundamental feeling (subjective) having the tension or conation which we have elsewhere described ;

2° Movement (extra-subjective) of the sensible parts of the human body excited by the proper external stimuli and in the proper manner, so as to give rise to excitation of the fundamental feeling ;

3° Sensations (subjective) or modifications of the fundamental feeling roused in it by excitation ;

4° Conations and movements following upon sensations (extra-subjective) and included by us under the two activities called *organizing function*, and *motor-sensual spontaneity*.

1821. From this series it appears that subjective and extra-subjective phenomena alternate, and that the entire activity starts from the *subjective principle*, which produces phenomena that are succeeded by a class of extra-subjective phenomena ; this again by another class of subjective phenomena ; this by another class of extra-subjective ones, and so on.

CHAPTER III.

HOW ANIMAL MOVEMENTS TAKE PLACE.

1822. According, then, to our theory of animal instinct there are, so to speak, two phenomenal regions, the region of subjective phenomena and the region of extra-subjective phenomena; in other words, the region of *feeling* and the region of external *movements*. The phenomena of the former region provoke those of the latter. Movements are produced by feelings. Feelings contain the cause, which is purely subjective; movements are the effect, which is purely extra-subjective.*

1823. The body is a substance; but in so far as it is the term of the sensitive principle, in so far it is the occasion of subjective phenomena, or feelings. On the other hand, in so far as it is sensiferous, in other words, a foreign force

* Some may perhaps think they see a contradiction between this statement and what we have several times said in other connections, namely, that the subjective and extra-subjective phenomena of the animal have no resemblance to each other, and merely maintain a certain proportion; hence they cannot be considered as causes and effects, but merely as two parallel orders of phenomena. Indeed, what resemblance can be discovered between *movements* and *feelings*? Here, on the other hand, we say that the latter are the causes of the former, and, reciprocally, the former the excitors of the latter. We must, therefore, explain our concept more clearly and dissipate the seeming contradiction. In our view, the true animal active principle is solely feeling, or that vital principle which lies in the actuated feeling of the continuous. Now, when the internal feeling of the animal

changes, there also take place movements in the animate body, and these movements are known to us through our external organs of sense, and represent themselves to us as sensations of these. We have, therefore, still a class of sensations whose true cause is our sensory; but this, nevertheless, is passive to an unknown agent represented to us by said sensations. Hence feelings belong to those causes of movements which the Schoolmen called *equivocal*, meaning that they are neither immediate nor full causes, and therefore are not causes in the proper sense of the word, but nevertheless act in such a way that the effect follows in consequence of their action; just as we might say that the sun is the cause of the herbs and flowers which he co-operates in producing by moving their immediate causes, and thereby doing something toward their production.

changing the term of feeling, in so far it is the occasion of extra-subjective phenomena, that is, of movements and their conations. Inasmuch, therefore, as the substance of the body is one, there is no absurdity in conceiving that the soul, which has an influence upon the subjective body in so far as it is the term of its feeling, should, as a necessary consequence, produce in the body extra-subjective phenomena, since the subjective body and the extra-subjective body are one and the same as to substance.

1824. Thus the influence of the soul upon the body, the virtue which a simple spirit has of setting a body in motion, loses much of the mystery in which it was involved. Indeed, there can be no difficulty in the conception of a soul that is active in its own feeling and does not go beyond that, since feeling also is something incorporeal and simple. Now we do not ascribe to the soul any other virtue than that which is displayed within the limits of its own feeling; this virtue cannot be denied, because continual experience attests to us that the soul by its own energy modifies its own feeling. Now this feeling we have submitted to analysis, and have found that it is, so to speak, the bridal chamber in which the extended weds the simple. But we have furthermore discovered that this extended constituting the necessary term of feeling is itself a substance, which not only stands in the relation of term to feeling, but is operative in its own way also outside of feeling, where it appears as a force foreign to feeling and changing its term, so that it obtains the two appellations of matter and body. This enables us to see plainly the reason why there correspond to subjective phenomena an equal number of extra-subjective phenomena and *vice versâ*, and hence why the soul, without going beyond its own feeling, and merely acting upon the term of it, can determine a body to change position, or, in one word, to move.

1825. It must be observed that this way in which the soul moves the body is one altogether different from impulse and every other mechanical communication of

motion. The difference is immense, we might say infinite. To be brief, we will mention only two points in which this difference can most easily be seen.

1^o Mechanical communication is limited to communicating that quantity of motion which already exists and no more; whereas, the soul produces and, so to speak, creates motion, and no fixed quantity can be assigned in this motion, since it is as great as the activity of the soul upon its own feeling, which activity at every instant may be increased or diminished.

2^o Mechanical communication is limited to communicating motion successively, such motion passing from one molecule to another of the body impelled or brought nearer, with diversities of time, and hence with oscillation of the parts, sometimes with rupture in the cohesion of these and cessation of the continuity of communication, as when, for example, the cohesion is slight, as in fluids, or is destroyed by the violence which rends the body, &c. On the contrary, the impression of motion coming from the soul, in so far as it is restricted to the extended, the term of feeling, is simultaneous in all that extended in which it intends to act, so that the parts of that extended are never sundered or disunited, and may be moved as the soul chooses, and this without any reference to whether they are fluid or solid (extra-subjective forms of the term), and, furthermore, without its being possible to assign a precise limit to the quantity of motion that is being impressed.

1826. Anyone who carefully considers these things will see that the discovery of this altogether unmechanical manner in which the soul excites or creates motion in the term of its own feeling, and hence also in the extra-subjective body, is one extremely valuable for the explanation of phenomena. Indeed, every other manner of communicating motion hitherto known is altogether insufficient to explain how the soul, by instinct or by will, can move the limbs of its own body. Let us look at the weights which a porter carries, or the force exerted by an athlete: how are the muscles so powerfully contracted or distended as to render

the bones obedient, and by means of them, to squeeze, push, press, draw, hurl, in a word, overcome enormous resistances? The will, say the physiologists, initiates its movements in the brain. But can the brain, so soft a substance, be a firm fulcrum on which to rest the lever, so to speak—a point of resistance whence to originate that marvellous power which is manifested in the arms, legs, &c. If the soul impresses movement on the substance of the brain, and if this is the quantity of movement that is to be communicated through the nerves to the muscles, and through these to the joints successively, as happens when mechanical motion is communicated, shall we ever arrive at the desired effect? In the soft substance of the brain there can be roused only a very small quantity of motion mechanically communicable to the more resisting parts; but the phenomenon to be explained presents us with a very considerable amount of motion. If that very small quantity of motion which is supposed to be in the very tender substance of the brain were the same that is imparted to the nerves and muscles which sustain great efforts, this small quantity must have increased on the way; whereas in any mechanical communication it ought to have diminished with the resistances it met and been altogether extinguished. There is, therefore, no hope of explaining by means of mechanical laws that movement which the soul impresses upon the limbs of the body. On the contrary, every difficulty vanishes if we adopt the other theory which we have set forth. According to this theory, the soul exerts the influence it possesses upon the extended, which is the term of its feeling, and does so simultaneously in all the parts in which it acts, and this action is more or less efficacious without determinate measure; and the modification produced does not require to be all in the same direction or in straight lines, &c., but may have any form or stamp, if we may so speak, which the soul chooses to give it, and be varied at pleasure. Hence in the extra-subjective order there may appear all those movements, manifold, various, potent, circular, &c., which are needed,

and which manifest themselves in fact when a man moves his own body for different purposes, as common experience attests.

1827. Recourse has been had to attractive forces, to electricity, to magnetism, &c. But the instinctive or voluntary movements of the various limbs of the body do not at all obey the laws which these agents follow when left to themselves. If we choose to think that these agents are under the power of the soul which renders them its ministers, there is nothing absurd in thinking that it may in part make use of these also; but primarily it does not use these alone. At all events, the difficulties, instead of being diminished by this supposition would be increased, because we should still have to meet the two questions: (1) How can the soul make these agents feel its motive and dominating power? (2) How can these agents communicate to the limbs the power of the soul, which may wish and unwish, and may from one moment to another command the most complicated and the most contrary movements? It is not necessary to say that in order to answer the first of these questions we should still be obliged to have recourse to the influence which the soul has within the sphere of the subjective order, from which it does not emerge. Now the phenomena of electricity, magnetism, &c., belong solely to the extra-subjective order. The question, therefore, would remain the same as before, and would receive no solution without recourse had to the theory propounded by us.

CHAPTER IV.

APPARENT OPPOSITION BETWEEN THE LAWS OF CORPOREAL MATTER AND THOSE OF ANIMAL ACTIVITY.

1828. The laws of animal activity manifest their effects in certain bodies which are called living. Those bodies which do not present the phenomena produced by animal activity are supposed to be inanimate and are called brute matter. Brute matter also manifests certain laws in its operation. And these laws and the phenomena in which they appear stand in seeming opposition to the phenomena presented by the action of animality; the forces with which the living body is endowed, and those of brute matter, seem frequently to conflict with each other. Is this opposition between laws of animal activity and those of material activity real or only apparent? Is there really a conflict? If so, is it a conflict between forces of different kinds or of the same kind?—We cannot pass over these most important questions without proposing at least some conjectures.

Let us begin with the law of inertia.

ARTICLE I.

Inertia.

1829. Let us reflect, in the first place, that all contingent beings, and not merely matter, obey a law of inertia, although their inertia is of different degrees.

1830. This universal inertia is due to the potentiality which lies in all finite beings, not one of which is pure act, this being the property of the Necessary Being alone.

Since finite beings are so many powers, they have not

in themselves the full reason of their second acts, and, therefore, cannot pass from power to act save under the influence of certain stimuli, under certain conditions.*

Let us now see how the conflict arises through the greater degrees of inertia possessed by brute matter in comparison with the living body.

1831. The brute body passes from rest to motion only when a force foreign to it is applied to it, which, invading it and then not leaving it, makes it continue to move in the same direction until a contrary force, likewise foreign, destroys the effect of the first.

But animal activity does something more with relation to the movement which it produces in bodies, as we may see if we consider its two functions which we have called respectively the *organizing* function, and the function of *motor-sensual spontaneity*. Indeed, whenever a brute body is moved, it continues to move in a straight line, whereas the organizing function, tending to bring into being the fundamental feeling in its highest possible degree of intensity, tends to give to the corporeal particles those attitudes and internal movements which correspond to the best condition of this feeling; and these cannot be in a direct line, since, if they were, these particles would segregate and the feeling itself be destroyed.

Hence arises the apparent conflict between the force of inertia in brute matter and the vital activity, that is from the contrary directions which they prescribe to the movements of the body.†

* The will, for example, can do nothing without a sufficient reason. Even liberty can only choose between those volitions which have a sufficient reason. See *Anthropology*, 606-611.

† It must be observed that the vital activity is the first act that constitutes the living substance. Hence it is not properly the seat of inertia, which we have made to consist in the inability of the power to pass to second acts of itself, whereas substances, or first acts, have an activity of their own such as the Creator gives them. At the same time, since the vital instinct may act in

a greater or less aggregate of corporeal particles, we may consider its operation as a second act, in so far as it refers to the aggregate rather than to the single particles. Now in this aggregating and organizing operation there is already manifested a degree of inertia and impotence, inasmuch as the operation cannot take place without a bringing together of the particles, which is only in part the effect of the organizing function; since foreign forces sometimes act so as to make them enter the sphere of the activity of this function, at other times so as to make them leave it.

1832. The same thing may be said of the *sensual spontaneity*, that function whereby the sentient principle aids with its activity all those movements which procure for it an agreeable sensation. In this process, indeed, foreign stimuli must always begin the movements in the fibres destined for sensations, and it is only then that the sensual instinct adds its activity, seconding this movement and making it continue considerably longer than it would do if it were due merely to the forces of brute matter.

In this again we see a kind of opposition and conflict between the movements which the body makes in obedience to material forces, and those which it receives from the motor-sensual spontaneity which tends to render more vivid and prolonged the agreeable sensation, and to increase all those movements that contribute to this effect, eliminating all those that do not.

ARTICLE II.

Attraction.

1833. Under the term *attraction* I include astronomical attraction as well as cohesion and chemical affinity.

I suppose that the law according to which attraction increases directly as the masses, and inversely as the squares of the distances, applies fully to molecular and elemental attraction.*

I suppose also that the contrary results which seem to show that at the smallest distances it does not apply, are due to errors in the calculation and arise in this way: When we are dealing with bodies situated at immense distances, like the stars, we may without perceptible error suppose that all the particles of which they are composed

* Since it is impossible to admit action in *distans*, when I speak of *attraction*, I must always be understood to mean the apparent phenomenon, not the force which is its true cause. The phenomenon certainly implies forces producing it, but it does not follow that we must admit true attractive

forces adhering to distant bodies; since this would be an hypothesis not only most improbable, but altogether absurd. I have already said that I admit two causes of motion, (1) the corporeal principle, (2) the sentient principle, both of them spiritual.

are equally attracted, and it is upon this postulate that the centre of gravity of the star is calculated, whereas in fact the particles composing the star are more or less attracted according to their position, some being nearer to the attracting body, others farther off. Now this difference may, as we have said, be neglected in such distant bodies;* but this cannot be done when we are dealing with very small distances, because then the slightest difference of distance is enough to increase the attraction immensely. Indeed, if two particles, let us say of spherical form were in contact,† each having a diameter of a thousand-millionth of a line [1000000000], the touching faces of these two particles would necessarily be attracted immensely more than their opposite backs, so that their centres of gravity could not be placed in the centres of the spheres, but much nearer to each other.

1834. At all events, it is certain that between animal movements and those due to attraction there is an apparent conflict. Here are facts :

No sooner does life leave the organs than they come under the power of the physical laws which entirely govern all non-organized bodies. An internal movement takes place in their substance, and the molecules display a tendency to decomposition standing in a direct ratio to the perfection of their composition. Chemistry knows

* One of the *quærenda* which has often presented itself to my mind, without my having ever found time to devote attention to it is this: "If we should take account of the greater degree of attraction existing between those parts of the stars which are turned toward each other, would it be possible to find the reason of their revolution on their own axis, without having recourse to the supposition that the primitive impulse supposed to have been given them by the Creator, was in an eccentric direction." It is plain that if we could, the number of revolutions made by a star on its own axis would furnish us with new data for determining its mass, density, &c.

† I see no reason to deny the possi-

bility of contact, especially since the contact of the surfaces does not prevent the centres of gravity of the two particles from remaining at a certain distance from each other. Indeed the mere surface of particles does not form any mass, is not any substance, but only the extremity of a substance, and as soon as one corporeal substance enters another beyond the surface, the two surfaces depart from each other and are no longer in contact. I, therefore, hold that the centre of gravity changes place even in the primitive elements, at the smallest distances, and hence, that we cannot admit Bosovich's simple points, although, as an hypothesis they have a certain use in facilitating calculations.

that the alterability of bodies stands in direct ratio to the multiplicity of their elements and that the corpse of an organized being resists decomposition for a time which is in direct ratio to the simplicity of its composition and to the fewness and insignificance of the principles which constitute it. In order that putrefaction may set in in the human body, this must be entirely deprived of life, since the forces that preserve it are the most powerful anti-septics, and it might be maintained that the condition of life is only a mysterious conflict against physical and chemical laws. This vital resistance the ancients designated by saying that the laws of the little world (microcosm) were in perpetual contradiction with the laws of the great world (macrocosm), which in the end always conquered. This force, ever acting and reacting, manifests itself by means of life; for which reason, if we wished to consider the results merely, we might define life as the resistance offered by organized bodies to the forces which tend incessantly to destroy them. Let us examine, one by one, all these phenomena, and we shall see that everyone of them aims at its own preservation, and succeeds in this aim only by carrying on a continual and mysterious struggle against the laws which govern inorganic bodies. In fact Bichat thought life might be defined as the complex of the functions which resist death :

L'ensemble des fonctions que résistent à la mort.*

ARTICLE III.

The Conflict in Question is Double.

1835. The apparent struggle which the vital instinct has to sustain is, therefore, of two kinds, *first*, a struggle with the law of the inertia of matter, *second*, a struggle with the law of attraction.

* Richerand, *Nouveaux Éléments de Physiologie*, &c., cxxxix. It is surprising to find some naturalists, in defiance of such manifest facts, denying the existence of the conflict of which we speak, and Magendie calling it an "ab-

surdité des plus fortes qu'ait jamais enfantées l'esprit humain" (*Précis Élémentaire de Physiologie*, &c., Propriétés Vitales). What we shall say afterwards is meant to reconcile these two opposite views.

The law of inertia constitutes the *mechanical order*, the law of attraction the *physical and chemical order*.

In the mechanical order, the resistance and opposition between matter and the vital forces lies in this, that the particles which compose the animal body, would, if they obeyed merely mechanical laws, move along a certain line and finally be brought to rest by the impinging particles which they would meet, whereas, under the influence of the vital activity they take a different line of motion, and the same motion continues.

In the physical and chemical order the opposition lies in this, that the particles, if they obeyed merely physical and chemical attractions and affinities, ought to crowd closely together and give rise to certain compositions and dissolutions such as take place in corpses, whereas, under the influences of the vital activities, these compositions and dissolutions are prevented, and instead of them there is the preservation and renewal of the mixture of the organic tissues.

CHAPTER V.

ON THE DIFFERENT MEANINGS WHICH MAY BE GIVEN TO THE TERM "SETTLEMENT," IN THE QUESTION WHETHER THE CONFLICT BETWEEN THE VITAL PRINCIPLE AND THE FOREIGN FORCES ADMITS OF SETTLEMENT.

1836. Now, in order to proceed securely, we must make very clear the state of the question, "whether the apparent conflict between the vital principle and the foreign forces admits of settlement," and therefore we must say what kind of settlement we mean.

Indeed this word receives different meanings. It may be applied to a *de facto* settlement, to a harmony established by the hand of the Creator, as well as to a theoretic settlement such as would occur if it were proved that there do not exist two conflicting principles, but only one active principle, which though always acting according to the same law, produces, merely on account of certain accidental circumstances, effects apparently different or even really opposed to such a degree as to tend reciprocally to destroy each other.

1837. Settlement understood in the first sense is manifestly possible ; but it is not a settlement belonging to the nature of the things themselves. On the contrary, it implies that there exist in nature various forces acting according to different laws, and therefore always liable to come into collision ; except that, being continually watched over by a third agent, by a mediator who governs, curbs, harmonizes them, they can never come into direct conflict by a pure accident, which does not depend on them. The possibility of this harmonious concert can never be

a matter of dispute, nor is it the question which philosophers of nature discuss.

1838. The question at issue, therefore, relates to settlement taken in the second sense. The inquiry is not whether in fact there is peace among the forces of nature, since it neither is nor can be denied that there is a continual war going on among them ; but it is whether this war is due to the existence of a multiplicity of agents specifically different, obeying different laws, and therefore liable to come in conflict with each other, or whether the contrary effects can be explained by being all reduced to a single principle acting according to a single law but variously determined by foreign circumstances which make it change its course and appear contrary to itself. Such is the statement of the question to which we must now address ourselves.

CHAPTER VI.

THE CONFLICT BETWEEN THE VITAL INSTINCT AND MECHANICAL FORCES DOES NOT ADMIT OF SETTLEMENT.

ARTICLE I.

Different Opinions.

1839. The philosophers of nature who have treated this question have not known the essential difference between the two kinds of conflict which we have described. They have always attacked the question in its entirety, without submitting it to analysis, and have, therefore, pronounced sweeping opinions, either denying the possibility of settlement or affirming it.

1840. I believe that even here the truth lies between the two views, in other words, that one part of the struggle in question cannot be settled and the other can. The struggle which the vital principle carries on with the mechanical forces does not admit of settlement, whereas that which it carries on with the attractive forces does not at all exclude it.

ARTICLE II.

Reasons of those who deny the Settlement in Question.

1841. The ancients never doubted the reality of the conflict which appears between spirit and matter, nor did it ever come into their heads that effects which are manifestly contrary could be reduced to the same cause.

This is the view that first presents itself to the mind. In fact, observation presents three classes of phenomena in the highest degree distinct and marked by opposite char-

acteristics : 1° The class of purely material and mechanical phenomena; 2° That of physical and chemical phenomena, or, in one word, phenomena of attraction; 3° That of animal phenomena. Hence the ordinary reasoning of men inferred that corresponding to these three so clearly distinct classes of effects there must be as many causes or forces of distinct natures to explain their existence, in other words, *mechanical*, *attractive* and *animal* forces, each acting according to a different law and thus creating an inevitable possibility of conflict.

ARTICLE III.

Reasons of those who affirm the Settlement.

1842. The reasoning of the ancient thinkers was based upon observation. To some moderns, on the contrary, it seemed repugnant to reason to say that there is a real and necessary conflict in nature, and they have also allowed themselves to be dazzled by the beauty and elegance which seemed to them to belong to a perfectly simple explanation, in which all natural phenomena were reduced to unity, to a single cause. This purely fanciful notion of elegance has drawn not a few of them into materialism, because they have flattered themselves, vainly indeed, that they could discover in mechanical forces the cause of all phenomena, not excepting even those of feeling and thought.

Others again have tried by other ways to arrive at the same result, but always on the wings of imagination. Hence all those who, thus far, have sought to find the struggle between the vital principle and external nature merely apparent, due, as it were, to a single, identical actor playing several parts at once, have had the misfortune to depart altogether from sound philosophical method, and therefore have not been able to take a single secure step forward.

ARTICLE IV.

Reasons of the Author's Opinion.

1843. The middle view, which, as we have said, seems to us the true one, follows as a natural corollary from what we have already said concerning the inertia of matter.

We have seen, indeed, that none of the mechanical effects of the communication and conservation of motion can belong to matter, but must all belong to that occult principle which brings it into being, and which we have called the *corporeal principle*.

We have likewise seen that none of the effects attributed to attraction can belong to the matter in which they appear, but to the *sensitive principle* united with it.

For these reasons we have concluded that all the movements to which matter is subject must be referred to two spiritual cases, the *corporeal principle* and the *sensitive principle*.

If, therefore, there are two specifically different causes of motion, which, because they are two, obey different laws, it is vain to attempt to remove all *possibility* of a conflict in nature, to refer all movements to a single law, and their origin to a single cause.

But since movements, in so far as they obey mechanical laws, must be ascribed to the corporeal principle, and in so far as they obey those of attraction, to the sensitive principle, we must, of necessity conclude that the conflict between the vital instinct and the mechanical forces is real, and the possibility of it cannot be removed; whereas the struggle of the same instinct with the forces of attraction is merely apparent, that is, it is due to two effects of the same principle, reciprocally contrary on account of the different portions of matter which this principle invests and the different conditions in which it is placed—a principle which though following the same law produces both kinds of effects.

CHAPTER VII.

THE CONFLICT WHICH THE VITAL INSTINCT PLAINLY HAS WITH THE FORCES OF ATTRACTION ADMITS OF SETTLEMENT, SINCE THE OPPOSITE ACTIONS MAY BE REFERRED TO A SINGLE PRINCIPLE.

1844. The reasons that have led us to admit the animation of the primal elements of matter have already been explained. Now it seems to us that this single fact is a cause sufficient to explain all the phenomena of the different attractions.

ARTICLE I.

Why Animal Phenomena do not appear in Inorganic Bodies.

1845. One of the greatest difficulties likely to render this opinion improbable to a great part of mankind is that they do not see at the first glance why, if the elements are animate, all bodies should not, as a natural consequence, present the phenomena that belong to animals. But any one who will take the trouble to consider the second law according to which the vital instinct acts, will easily see that, even granting the animation of the elements, the appearance of animal phenomena is altogether impossible unless the body receives a suitable organization.

In fact, it is plain that the increase of motion which we have attributed to motor spontaneity, both the vital and the sensual, and which is one of the chief animal phenomena, could never take place in an inorganic body. The reason is that this spontaneity requires continual stimuli, which cannot be constant except in a machine so ingeni-

ously constructed that the movement itself shall always produce new stimuli causing new motion.

1846. To explain this thought I will refer to the more perfect animal bodies, in which it is very much easier to observe the perpetual motion we speak of, a motion in which the stimuli generate motion, the motion generates new stimuli, and so on. Let us call to mind the connexion and reciprocal action of the three principal viscera of the human machine, the lungs, the heart, and the brain.

The movements of each of these either are or produce so many stimuli and excitations for the other two. The lungs, by their movements in receiving a portion of vital air by inhalation and sending forth a portion of carbonic acid by exhalation, colour the red blood, which is the principal stimulus of the heart, and of the brain to which it is propelled by the movements of the heart. It is, therefore, the movements of the heart that by sending the red blood to the brain and nerves rouse and excite them. Afterwards, when this blood again becomes black on its course, and is again thrown back by the right ventricle of the heart into the arteries and veins of the lungs, this organ is again found constantly refurnished with new matter suitable for its action, which is that of oxygenating the black blood itself. Finally the movements and the excitation of the brain are the cause of the mechanical movement of the lungs themselves, and if these mechanical movements ceased, there would be an end of that chemical action of the lungs which, by reddening the blood, renders it a most powerful stimulus and exciter of the heart, the brain and all the nerves. The three principal viscera, therefore, are so wonderfully bound together that the movements of each contribute to the movements of the other two, in such a way that the movement does not properly begin in any one of them, since the lungs do not move unless the brain moves them, and the brain does not move unless it is excited and stimulated by the red blood, and the red blood cannot excite the brain unless the heart sends it there, and the heart cannot send it there unless it receives it already

reddened by the lungs and moved so * as to be a stimulus to the heart itself, and to produce in it the contra-distention necessary to impel the blood by means of the arteries to the brain.†

1847. In this way no one of the three movements can begin by itself alone, and this is a fresh proof that the animal is not formed piecemeal, but that its type is given ready formed in nature, or is at least formed by a single action of a single principle, whose operation terminates in a manifold extended. It is also a fresh proof that nature is everywhere subject to the ontological law of synthesisism.

1848. Organization, therefore, is necessary for the manifestation of animal phenomena conditioned by continuous excitation, which requires that new stimuli shall be continually applied to those parts which are to be kept in motion. The example cited (and physiology is full of them) proves to demonstration that it is only a given organization that renders possible the continual renewal of the stimuli which, when applied to the sensitive organs, produce in them movements capable of causing excitation in the fundamental feeling, whence arise sensations and spontaneous movements.

And it must be observed that the fact which we are describing is not merely mechanical motion, but is mechanical motion excited by chemical and physical actions, and above all by the *motor spontaneity* of feeling. For how does the brain produce the alternating movements of the lungs? Not certainly by the mere mechanical impulse of the blood that irrigates the brain, or by the chemical action which the red blood may exert upon it. All this might happen in a corpse without any contraction or dilatation

* The blood is not only impelled by the heart, but all along its course it receives continual impulses from the contraction of the blood-vessels. Now these contractions must necessarily be caused by the muscular fibres; but these receive their contra-distensive mobility only from the small arteries that bring them the powerful stimulus of the red blood.

† If the lungs of the foetus are inactive, it must be remembered that their place is filled by the lungs of the mother, who communicates her own red blood to the foetus through the umbilical vein. Something of the same kind is true of hydatids and intestinal worms, which seem to derive a certain excitation from contact with the red blood of the animal in which they are.

of the lungs. It is, therefore, through the life. In other words, the internal feeling, which at every moment spontaneously assumes that attitude and arrangement that is least inconvenient and most comfortable to it, is exactly what, by means of these attitudes and arrangements, determines the alternate movements of the organ of respiration. In fact, when the animal does not breathe, it feels uncomfortable, its feeling suffers; it therefore seeks to avoid this discomfort, and for this purpose promotes the movements which relieve it and restore it to the natural state which is agreeable to it.

1849. This law of the sensual instinct, that "feeling arranges itself in the least disagreeable or most agreeable manner that it can," explains all the involuntary movements of the animal, all those movements which, in Bichat's language, belong to organic life.

1850. Let us obtain new light from another example, the reciprocal movements of the lungs and the diaphragm.

"The lungs," observes Magendie, "tend continually to recoil upon themselves, to occupy a space smaller than that of the cavity in which they are situated, and, therefore, they exert an attraction upon all the points of the walls of the thorax. This attraction produces but little effect upon the ribs, which cannot yield; but it produces a great one on the diaphragm. This muscle is held by it in a continual state of tension, and is so sustained as to assume the form of a bow. When afterwards it sinks by contraction, then of necessity it draws the lungs toward the basis of the chest. These organs become thus more and more distended, and, on account of their elasticity, strive with all the greater energy to draw back into themselves, and so carry up the diaphragm with them. Indeed the diaphragm would be instantly restored to its bow-form when it ceased to contract, were it not prevented by a particular movement of the glottis, which places a certain obstacle in the way of the air as it issues from the breast. The rising of the diaphragm in expiration is, moreover, aided by the elasticity or even the contraction of the muscles of the

abdomen, which are distended by the downward pressure of the viscera at the moment of the contraction of the diaphragm." *

In this passage we learn that each of these two organs has its natural position according to the laws of the mechanism with which they are constructed; but these positions, in which they would remain if their attitude were determined merely by mechanical laws, become uncomfortable to feeling; and hence the activity of feeling, which tends to arrange and compose itself in the manner which shall be least disagreeable and most agreeable to it, removes alternately each of the organs from its position, thus making them become reciprocal motors of each other. In this way they are for the greater part of the time out of the position to which mechanical forces would assign them, and hold the position assigned to them by the requirements of feeling, a position which may be changed at every moment on account of the incessant change of place to which they find themselves gently stimulated.

ARTICLE II.

How the Attractive and the Animal Forces may be reduced to a Single Principle.

1851. Having thus removed the difficulty arising from the absence of animal phenomena in inorganic bodies, and shown that they cannot appear simply for want of the proper organization, we no longer find in this difficulty an obstacle to admitting the animation of the primitive elements.

On the other hand, this animation is the simplest of all means for explaining all the phenomena of attraction, being the only one which offers a known cause of motion, and not a chimerical one like all those that are assumed as mere hypotheses.

1852. And not only is the vital principle an undoubted

* *Précis Élémentaire de Physiologie.* Des poumons.

cause of motion, as we are shown by experience and consciousness, but it is unquestionably also a cause of attractive motion, as appears from the different functions of the vital and sensual instincts, which we have already enumerated.

1853. It is true, of course, that where organization is wanting, this principle cannot produce either continuous or complicated movements. Here, therefore, it is obliged to confine itself to simple attractions in straight lines, because circular and other movements which result from the composition of innumerable simple motions, requiring repeated stimuli for continual reproduction, are impossible.

1854. Hence we can also see that the effects produced by the vital principle in organic bodies, must be very different from those produced in inorganic bodies, must seem to be directed by different laws, and, therefore, to depend upon a different cause, although this is not really the case. Even this, however, would not be sufficient to explain how they may come into collision. But this explanation is found as soon as we consider the doctrine of the *individuation* of feeling. We saw, in fact, 1° that if a continuous felt is divided into several *continua*, the sensitive principles, which contain the animal activities, multiply, and 2° that these principles so multiplied, individuate themselves according to the centres of greatest excitation.

When this takes place, then, the sensitive principle is no longer one. Several such principles appear, each with a vital instinct of its own, each endowed with a distinct activity, some greater, some less. The sensitive principles, therefore, which are bound up with inorganic matter are not the same as those which are bound up with an organism; neither have they the same activity, nor are they fitted to produce the same effects. When, on the other hand, a sensitive principle is constituted with its own individuation, it acts solely for itself, and tends only to conquer, and to extend its dominion by making use of every opportunity, and in this dominion it seeks to be

alone. Hence the conflict. This is carried on between different sensitive principles differently individuated. Accordingly, it takes place not only between the animal and the attractive forces, but also between the forces of one animal and those of another, as we may see not only in the fact that living creatures introduce themselves into the bodies of other living creatures and cause disease and death in them (598-602), but also in the patent fact that all beings of irrational nature wage an implacable, deadly war with each other.

ARTICLE III.

Prevalence of the Animal Forces over the Attractive.

1855. But, if this theory is true, the vital principle of an organism must be more powerful than the merely attractive forces (physical and chemical), whose vital principles must have a less extended dominion with little or no excitation. Experience which shows that this is really the case furnishes a fresh proof of the theory indicated. In fact, in every animal, its own forces, those that are recognized by all as animal forces, are the ruling ones: nay, it is simply in the dominion which these exercise over the chemical and physical forces, by conquering, eliminating, modifying and utilizing them, that their character, properly speaking, consists. The animal can live only on condition of exercising this dominion.

1856. In fact, as soon as animal life ceases, dissolutions and compositions begin at once to appear in the corpse. It follows that the molecules that make up the living body are placed in a different situation and condition, and have different movements from those they would have if they obeyed merely chemical laws. The forces of life, therefore, oppose the chemical forces and prevent their action, a fact from which Brown inferred that life was a forced and violent state, without observing that the chemical forces are outside of the life of the ruling animal, and that the vital activity which prevents their

extra-subjective effects, so far from being forced in its action, finds in this very action its natural and spontaneous state, and hence that the forced state is only the diseased or uncomfortable state in which life does not succeed in completely dominating the chemical phenomena. This dominion, therefore, is the natural and normal state of animal life, and it is only when this dominion is impeded that life begins to be a forced instead of a natural state.

1857. Now, how is it that the vital force prevents the action of the chemical forces, and makes the elements of matter obey other laws?—Always through the two functions which we have distinguished as causes of extra-subjective phenomena—the organizing function and the function of sensual motor spontaneity.

In the former of these we remarked three moments, that of *retention*, whereby the organizing function keeps the living molecules within the sphere of life; that of *assimilation*, whereby it compounds molecules out of the primal elements, with that form, mixture and arrangement which they require in order to live the life of the dominating individual; and that of *motor-vital spontaneity*, whereby it facilitates the internal movements of the molecules and of the organs which these go to make up.

1858. The first of these three moments of the organizing function does not produce movement, but exerts itself to prevent it; it is that conation of the vital instinct which tends to impede the movements of the elements, molecules and organs which are opposed to life. The second and third produce those movements which the instinct desires and hankers after; but the second, called by us the function of *assimilation*, is the cause of the movements which are produced in elements not yet animated with the individual life of the operating animal, and tend to decompose, compose, shape, choose, mix and combine so as to produce molecules fit to live of the life of the whole and to take their proper places in it. The third, on the other hand, is the cause of the vital movements of molecules

already alive or belonging to the living compound; and these molecules are moved in order that the fundamental feeling may perpetuate itself in them, and be excited in its whole in the manner it desires to be.

1859. Now, if we pay attention to these two last moments of the organizing function, we shall readily understand, that admitting the principle that "feeling assumes the attitude which best pleases it, and that this attitude brings with it the extra-subjective movements which we have described, because feeling is inherent in the elements, and hence the changes occurring in it cause corresponding movements in these which are its necessary term"—it follows that the effects of the chemical forces must, as a matter of course, be suspended and appear as effects of a different kind. For the sake of simplification, let us confine our attention to the motor-vital spontaneity, that function whereby the vital instinct tends to maintain or produce an incessant internal movement which is a necessary condition of the fundamental feeling of excitation.

It is clear that if the molecules are to continue in an internal movement, if the activity of feeling is to co-operate so as to facilitate and help such movement, the action which this activity exerts upon the molecules must be such as to place them, with relation to each other, in such position as will result in their touching in the smallest possible number of points; since it is only in this way that it is possible to facilitate and aid that movement in which one molecule rubs against another without becoming immovably attached to it. This explains in a simple way why the molecules composing the animal present the globular rather than the angular form. The molecules, having thus fewer points of contact, enjoy greater mobility, and can continually glide along each other, touching each other in any part, without either separating or sticking together. Hence the globules which are observed with the microscope in the various animal liquids and especially in the blood.

1860. The formation of these spherical molecules must be chiefly attributed to that moment of the organic function which we have called *assimilation*.

The vital instinct groups the elements into those little spheres precisely, because feeling loves and aids that form, inasmuch as that form enables it to obtain the excitement which perfects it.*

Neither is it difficult to understand by what mechanism these molecules are rounded. Granting that the tendency of the fundamental feeling to be excited aids and facilitates the movements of the organic molecules of the first formation, and that these are mutually in contact so as to produce rubbing in all directions, the result must be rotatory motion which rubs off the angles of the molecules and so tends to make them round.

1861. This seems to me so probable that I am inclined to accept the spherical form of the molecules as a proof that these molecules have internal movements in which they rub against each other on all sides.†

1862. The sphericity of molecules also renders it easy to explain how the vascular system is organized, since, after the observations of so many famous physiologists, there can be no doubt that the vesicles have their origin in the vacant spaces left between molecules. Now, granting the rotundity of the molecules, it is plain that when they

* It need not be a matter for surprise that I here introduce the action of feeling in speaking of the vital instinct which is what posits feeling itself, because, as I have already said, it must not be supposed that chronologically the vital instinct first exists without feeling, and afterwards produces it. No, it must be remembered that in our opinion, the animal, or, at least the animate element, is given in nature. The Creator has formed it in an indivisible instant, and, therefore, there can be no succession in its formation. Hence, it is in the animal given in nature, in the fundamental feeling which constitutes it, that we mentally distinguish the first activity, calling it *vital instinct*. But this activity in the existing feeling itself is anterior

to the communication of feeling as regards the foreign body which is assimilated to the animal whole. The vital instinct, therefore, does not act in the foreign body in virtue of the feeling which it does not yet possess, but in virtue of the feeling of the animal itself.

† That feeling tends to be excited and has the spontaneity to second the action of stimuli, and that the excitation of feeling takes place through certain movements of the molecules that make up the animal compound, and especially the nerves, are two facts which seem unquestionable, since there is no doubt that the *instinct to feel* exists, and that the special and accidental sensations arise through the internal movements of the medullary substance of the nerves.

are in contact they leave between them a greater space than molecules of any other form would do, since those small spheres can touch each other at only one point. If then we suppose that there are other spherical molecules, much more minute, which, passing through these interstices, force and widen them, while large numbers of them, stopping in the larger spaces, become consolidated and render the canal more regular and continuous, it is easy, as we have said, to understand the formation of the innumerable vesicles which traverse the animal body, or rather which make up and form it.

1863. It is also plain that the little spheres grouped up together leave a better chance for other particles to introduce themselves between them by pushing them a little asunder, as must happen when a foreign particle is assimilated and feeling communicated to it. The particles of the animal body tend to preserve their contact through that moment of the organizing function which we have called *retention*. But the foreign particle, when it introduces itself forcibly and overcomes their retention, receives by virtue of this same retention, the continuity of feeling, and having duly established itself between them (as it will do if it is sufficiently small and homogeneous), it does not cause the feelings of the forcibly sundered molecules to become discontinuous, but pleasurable with its own feeling forms a continuation of them. Now, that internal movements go on in every part of the animal, is also a fact about which all physiologists are agreed. Cuvier describes life as a continual vortex which always drags new particles into its movement and expels old ones. And even before him, Frederick Hoffman had written: "*Corporis humani vita, ejusque functionum integritas in solidorum et fluidorum libero et æquali motu consistit.*" Luigi Buzzoni also, in his *Saggio di alcune riflessioni mediche-teorico-pratiche*, chap. v, writes: "It is impossible to conceive any action or function as going on in the organism of living beings, without supposing movement, however obscure, in all those organs which have to per-

form it. In fact, it is impossible that any *part or element* in these same organs should remain *perfectly at rest*. And it is only necessary that a single function should be performed and a single apparatus moved, in order to make the *single* parts of all the other organs move and *oscillate*. Indeed, according to the profound views of the celebrated Bordeu, although every organ lives with a special life of its own, still all the organs of any living being have such a relation to each other that at the movement of any one of them all the rest must respond each with its own peculiar movement. And, although we cannot properly call a being living because *all and each of the elements* of which it is composed are in perennial motion, still, as I have said, we cannot form a correct idea of life without first having the idea of motion, &c."

Professor Medici also writes :

"If it were possible to cognize through the senses what we can imagine with our minds, we should see in every fibre a circle, so to speak, or a vortex of molecules, some departing, carried away by the extreme mouths of the lymphatic vessels, others arriving, and led by the capillary extremities of the exhaling vessels; we should see the molecules of the humour already arrived, and deposited on the tissues, solidify, acquire the consistency, colour, taste, odour and vital energy of those tissues of which they become parts, and of which every point is at every instant changed and restored."*

And, long before him, Alfonso Borelli wrote : "*Animalium vita in perenni et non interrupto motu consistit; agitantur enim artus, et partes omnes solidæ, fluidæ, spirituosæ, dum corpus movetur, dum cibaria ingerit, concoquit, chylicat, et in sanguinem vertit, dum nutrit et reficit partes deperditas, dum motus sensitivos edit: et in summa nihil stabile in animali, dum vivit, permanet.*"†

* *De Motu Animalium*, chap. viii, prop. 116.

† *Commentario intorno alla vita*, Opusc. Scient. di Bologna, Bk. III, p. 254.

CHAPTER VIII.

ON THE QUANTITY OF EXCITATION NECESSARY TO THE
FUNDAMENTAL FEELING OF EVERY ANIMAL.

1864. The vital forces, then, are more powerful than those which are called physical and chemical, and are meant to dominate them. And this must be the case if it is true that the vital forces are those of a feeling individuated in a suitable organism, while the physical and chemical forces are the instinctive forces of feelings devoid of organism and bound up with atoms and molecules not combined into any unity. The feeling and consequent instinct must, therefore, certainly be less vigorous in those bodies which are not yet organized than in those which are well organized. But here the question meets us: "How can the quantity of force belonging to an animal instinct be determined?" This question includes several others. Let us begin by restricting it to the fundamental feeling of excitation.

We ask why, in a given organization, the excitation naturally maintains a certain maximum measure and quantity. Have we not said that the activity of the vivifying act seems inexhaustible? * What then is the law that limits and determines the quantity of excitation in the fundamental feeling of any given animal? For example, if the reciprocal action of the lungs, heart and brain proceeds from the animal activity, why is not this action greater? Why does not the circulation go on more rapidly?

1865. The fundamental feeling results from the felt

* *Anthropology*, 377-379.

extended and from excitation. Let us see how the excitation arises.

The feeling diffused in extension is the work of the vital instinct; but excitation implies a first stimulus given by nature.

Applied to a suitable organization, this stimulus arouses sensation in it, and this is still the work of the vital instinct, because it is only a modification of the feeling which that instinct produces.*

This first sensation moves the sensual instinct, which continues the movement begun by the sensiferous stimulus, and this movement revolving in a circle perpetuates the excitation of the fundamental feeling.

The question, therefore, resolves itself into this: "Why does the sensual instinct operate with a certain degree of activity, which limits and determines the quantity of excitation belonging to the fundamental feeling of a given living creature?"

1866. Now the law which determines the degree of activity belonging to the sensual instinct,† when applied to this question, takes this form: "The sensual instinct acts with a quantity of action proportioned to the feeling from which it starts, and continued so long as it continues to be pleasant."

1867. It follows from this law:

1° That the activity of the sensual instinct is limited by the quantity of the feeling, and therefore of the original stimulus which has excited that feeling.

2° That it is limited by the pleasure which the animal finds in the action of the instinct.

1868. But what is it that determines the pleasure which the animal finds in the action of the instinct?

Nothing else than the organization more or less mobile, more or less suited to reproduce fresh stimuli and fresh sensations, which again excite the sensual instinct to activity.

The sensual instinct can move only the living body,

* *Anthropology*, 392-400.

† *Ibid.*, 443-454.

that is, the living organism ; this is an absolute limitation proper to it.

If the sensual instinct finds resistance in the body, it will cease to act as soon as the labour necessary for overcoming that resistance causes a pain greater than the pleasure bound up with its action.

1869. Now experience shows that it always finds some resistance, although it choose the easiest motions. Hence, in order that its action may not cease, it must itself, before it ceases to act, before it ceases to be pleasant, by means of its own action cause other stimuli to reproduce its own activity. If these new stimuli are less powerful than the first, the activity of the sensual principle diminishes, and if this diminution goes on continuously, the instinct finally arrives at perfect rest and the life of the animal spontaneously comes to an end.

1870. If, on the other hand, from any defect in the organization, or from any alteration in the organic compound, there arises the phenomenon of pain belonging to the vital instinct, then the sensual instinct receives a new activity in the opposite direction, that is, tending no longer to continue or increase pleasure, but to diminish or remove pain. And this activity follows the same laws as does that produced by pleasure, and is, therefore, as great as the pain, and sufficient to prevent the pain from increasing and to diminish it. If, however, the movements produced by it instead of diminishing the pain were to increase it, then the sensual activity would instantly cease and be followed by that quiet which abandons itself to pain. Then the animal falls into a state of collapse and helplessness ; the medicinal forces of nature cease to operate, leaving the field to the disturbing forces, which easily succeed in destroying the organism and causing death.

CHAPTER IX.

CONFIRMATION OF THE THESIS THAT "THE PHENOMENA OF THE LIVING BODY CANNOT BE EXPLAINED WITHOUT THE ADMISSION OF A SINGLE SENSITIVE PRINCIPLE."

1871. Having thus expounded the laws of animality, we must now show, 1° that they are necessary for the explanation of animal phenomena, and 2° that they are sufficient for this.

Let us begin with the fundamental proposition of the theory laid down, namely, that "animal phenomena cannot be explained, unless we can find a single principle on which they depend, and this principle a sensitive one."

ARTICLE I.

Necessity of a single Sensitive principle for Animal Phenomena to depend upon.

1872. We say, that even although we should succeed in explaining animal phenomena taken singly by recourse to different principles, we should still have left unexplained their harmonious complex, their wonderful unity, which can find a sufficient reason only in a single principle, and this a sensitive one. Our attention must now, therefore, be directed to that marvellous agreement which exists among the different living organs, and which was so solemnly proclaimed from the most remote antiquity.

Very celebrated is the saying of Hippocrates : "ξύρροια μία, ξύμπνοια μία, ξυμπαδεία πάντα," which means, "One concourse, one conspiracy, all things in sympathy." *

* *De Aliment*, IV.

1873. Of course, no effort has been spared by Physiologists to discover an explanation for so wonderful a fact. Recourse has been had to the construction of the animal machine, to the common origin of certain parts of the body, to the proximity of others,* to the communication between the vessels, to the continuation of the fibres and membranes, &c.†

1874. And it is unquestionably necessary that the living body should be constructed with the most wonderful mechanism, in order that the phenomena of sympathy between the various parts should take place. We have already spoken of the necessity of organization generally for the manifestation of the phenomena of life. But even when this has been granted, it has never been found possible in any way to discover in mere mechanism a full and sufficient reason of the sympathy in question, because no mechanism contains the unity of cause necessary to produce it. If there were merely question of explaining the harmony of the extra-subjective movements corresponding to each other in the different parts that go to make up the machine of the animal body, it might perhaps seem that the matter could be settled by merely supposing a kind of supremely ingenious divine mechanism. But the sympathy and harmony which manifest themselves in the human body are not merely extra-subjective; they are, besides and chiefly, subjective in feeling. Indeed, if we examine them carefully, we shall see that they always consist in a correspondence between external movements and feelings; in other words, between extra-subjective and subjective phenomena, a correspondence having such laws as to give evidence of the presence of a single principle without parts and sensitive.

1875. I must, however, observe, that even if we confined our attention to the harmonious movements that take place simultaneously in the different organs of the machine

* See Baglivi, *De Fibra Motrice*, and especially the chapter *De Consensu solidorum jure originis, vicinitatis, usus et communicationis officii*.

† Henr. Jos. Ræga, *De Sympathia seu consensu partium corporis humani*, &c., chap. iii.

of the animal body, I do not think we should ever be able to explain them by the mere mechanical laws of the communication of motion. These produce only successive movements, whereas the affections of the human body are very often permanent and simultaneous as well as harmonious. The former move the organs of the machine, but do not modify, perfect or form them, as is the case with animal movements, which affect the machine itself in such a way that its particular conformation is due to them.

1876. Moreover, in the movements of the human machine, as Cheyne observed, there is a continual loss of force through the friction and attrition of the parts, so that there must be an inexhaustible principle of force outside the mechanism continually making up for this loss.*

1877. Finally, it is impossible to get over the cogency of Clark's proof that perpetual motion cannot be obtained from purely mechanical forces. This proof rests upon the principle that "perpetual motion would support a weight heavier than itself, or an elastic force more elastic than itself"—a contradiction in terms. Hence William Porterfield concludes that the perpetual movements of the animal imply a principle altogether hypermechanical.†

It remains for us, therefore, to inquire what is that single force which, being applied to the organized body, produces those numberless, complicated, unceasing phenomena of sympathy and conspiracy [*συνέργεια*] among all parts of the same body.

1878. Even modern physicians are at last beginning to perceive and confess that in order to explain this marvelous fact, recourse must be had to a single principle.

"Vitalism," says Bufalini, "is right in its fundamental principle that organic motion is the origin of all the functions of life; but it is wrong in holding that the investigations of the pathologist must not go beyond this same vital

* *English Maladies*, p. 80 (London, 1733). Porterfield also showed the necessity of a principle other than mechanism in the human body from the fact of the reproduction of the me-

chanism itself. See his *Treatise on the Eye*, &c., inserted in the *Medical Essays*, &c., published at Edinburgh, Vol. IV, 1789.

† *Op. citat.*

motion, since the fact is that this motion is not the first origin of organic phenomena, but is itself a phenomenon. And although it is true that all the functions of organized bodies are connected with vital motion, still, in the general chain of the phenomena of organized nature, this motion is not the first phenomenon from which all the others proceed, nor is it the last which our analytic researches can reach, because it is itself produced by the VITAL FORCE."*

1879. As to the ancients, on the other hand, who were not prejudiced by the materialistic and gratuitous assertions of a few sophists, there never was any doubt in their mind upon this matter. That the operations of the animal body must all be referred to a single original force altogether different from all others, was always clearly seen by the most distinguished philosophers and physicians. The father of medicine makes use of this force to explain how the different parts of the body feed themselves. He calls it ἐξ ἀρχῆς δύναμις (a faculty present from the beginning†), and adds: "The beginning of all things is one, and the end of all things is one, and the end is the same as the beginning."‡

ARTICLE II.

History of the Opinions in regard to the Single Principle on which Animal Phenomena depend.

1880. But the concept which students of nature have at different times formed of this force has often been very imperfect.

They saw plainly that neither it, nor yet the first movements produced by it, which initiated sensible motion, fell under the senses; || but what they perhaps never saw fully

* *Fondamenti di Patologia analitica*, p. 114 (Milan, 1833).

† *De Alimento*, I.

‡ Ἀρχὴ δὲ πάντων μία, καὶ τελευτὴ πάντων μία, καὶ ἡ αὐτὴ τελευτὴ καὶ ἀρχή.

|| "Indeed the sensible phenomena of living machines are not the mere action of excitability; but this action itself is a

very occult movement, obeying certain special laws, and aroused in the primitive organic fibril by the impulse of external objects. This movement does not fall under the senses, has no constant relation to the apparent phenomena of our machine, and cannot, therefore, in any way be measured by us."

and clearly was that movement and feeling are phenomena essentially diverse* and opposite, and, what is more, that

Memoir on the thesis proposed by the Italian Scientific Society of Modena: "To determine whether the notions of Excitability, &c., are sufficiently accurate, &c.," p. 16 (Modena, 1823).

* Brown undertook to show that all animal phenomena are due to a single property, viz., excitability, and made use of this argument: "The effect of stimuli upon excitability is always the same, because it always consists in promoting sense, muscular motion, thinking activity, and emotion." Now, it seems almost impossible that a man of intellect, as the Scottish physician certainly was, could have confounded together four things so different and opposite as the four here named. But what ought to seem still more strange is that he has found so many disciples, who have not even suspected the fallacy contained in this gross sophism. Among Italian physicians, Guani objected to Brown that the action of external stimuli did not manifest itself in all organs with uniform effects (*Reply to the thesis proposed by the Italian Scientific Society of Modena* (Modena, 1824), and the objection was reproduced and perfected by Bufalini in this form:

"In the first place, Brown considers excitability to be always one and the same, because (he says) the action of stimuli is always followed by the same effect, which includes sense, muscular motion, thinking activity, and emotions. But here an abstraction is confounded with the reality of things, because the identity in those vital acts belongs solely to their common abstract attribute of subjection to the laws of life. But in reality, sense is surely not the same thing as muscular motion, and this again is not the same thing as the actions of the mind, &c. Nay, inasmuch as in all those vital acts there is a difference, and, moreover, the same external agent excites sense in the nerves, provokes contraction in the muscles, and awakes mental action in the brain, we should of necessity have to admit different kinds of excitability in the nerves, muscles and brain, if it were true that these acts can be obtained simply from the action of excitability" (*Memoir ut sup.* p. 16. Modena, 1823). And he shows very clearly,

that if the excitability were the same property in the different parts of the machine and different merely in amount, then by increasing the stimulus (on which this amount is made to depend) upon a muscle, we could, for example, obtain sensation from it, which is impossible.

But then Bufalini himself does not seize the principal and most powerful argument to show the fallacy contained in Brown's theory, which argument lies in the absolute and essential difference between the subjective phenomena of sense, emotion and thought, on the one hand, and the extra-subjective phenomena of muscular motion on the other, and is disposed to admit that there are different excitabilities peculiar to the different parts of the body, in virtue of which excitabilities the same external agent causes motion in the muscles, sense in the nerves, and thought in the brain! Now what is true is, that motion is unquestionably produced by external agents in all parts of the body, whether muscles, nerves, or the brain itself, although the motion produced in one of these organs may be different from that produced in another in direction, rapidity, frequency, &c., which are merely accidental modifications of motion; and this is all that extra-subjective experience tells us. It does not tell us that the same external agent which produces motion in the muscle produces sense in the nerve, and much less does it tell us that it produces thought in the brain. Indeed, all that it tells us is, that the external agent produces in the nerve and in the brain, as well as in the muscle, motion and nothing more, which motion is an effect analagous to the nature of the agent. This is all. Now, there is another experience, which is subjective and internal, and this alone tells us, that when in the extra-subjective body which is called nerve the external and extra-subjective agent has produced a certain movement, then sensation manifests itself in the *subject*. This subjective experience is so different from the other, that it neither does nor can give us any information of the extra-subjective phenomenon, that is, of the motion which the external agent has produced in the nerve; all that it bears witness of is the

movement is not first and feeling second, as if the latter were generated by the former; but that the exact opposite is true, namely, that feeling comes first and has an activity whereby it produces the animal movement,* which is presented in the body to extra-subjective observation.

And, indeed, it is an undeniable fact attested by our consciousness, that we can move our bodies, and, when I say we, I mean a substantial feeling, as I have already explained. It is an undeniable fact that no new feeling springs up in us without being accompanied by corre-

mere sensation. We have, therefore, to compare the two experiences, the one extra-subjective, showing us the motion produced by the external agent, the other subjective, furnishing us with sensation, in order to discover that the space in which this sensation is diffused is identical with that in which the corresponding motion has sprung up. So far, therefore, is the external agent from producing sensation, that it does not even exist for the faculty which gives us sensation. Hence *motion* and *sensation* are effects of powers specifically different, and therefore the phenomenon of motion has much less resemblance to those of sensation, than taste has to gravity. This being the case, we must see to which of these powers the *external agent* belongs. Now, the external agent belongs, as we have said, to the faculty which makes motion known to us, and not to that which makes sensation known; in other words, it belongs to the faculty of extra-subjective experience, and not to the faculty of subjective experience. All that we know, therefore, of the external agent is given to us by the faculty which makes motion known, and this tells us that the external agent is the cause of this motion. But this faculty tells us nothing with regard to sensation, and therefore cannot tell us that the external agent is its cause. On the other hand, the faculty of subjective experience which gives us evidence of sensation tells us nothing of the external agent, and, therefore, cannot tell us that it is the cause of this same sensation. It is, therefore, a gratuitous, not to say manifestly false, assertion to say that, as the external agent when applied to the muscle

produces motion, so, when applied to the nerve, it produces sensation.

And it is even far more incorrect to say that the external agent when applied to the brain causes thought in it. In order to prove this, it will be sufficient to observe that thought cannot be excited by the external agent, unless that agent first excites sensation, which alone is capable of rousing thought. Now, we have seen that the external agent does not directly rouse sensation, its proper effect being nothing but *motion*, and all that can be said is that certain motions produced by it in the nerves are accompanied by sensation, which is due neither to the external agent nor to the excitability of the fibres, but to another entity, the subjective entity; in one word, to the fundamental feeling and to its excitability, which is essentially different from that of the fibres. Much less, therefore, does the external agent produce thought in the brain.

We may add that internal observation shows us that there are thoughts which have no need of sensations or images; I mean *pure* or *non-materiated* thoughts. These are not in the smallest degree conditioned by, or bound up with, the action of any bodily organ.

* I say *animal* because not every movement of the body is animal, but only that which is produced by the animal principle. It must be observed, however, that the *vital instinct* which posits feeling, gives to the body which it invests a kind of aptitude or tone, a certain internal collocation or attitude of the molecules, which renders it capable of being vivified and felt. See *Anthropology*, 367-369.

sponding new movements in the body. This we see in the case of the passions; the passion of fear, for example, determines the blood to flow back from the extremities to the heart, &c., &c. That feelings, therefore, and the instincts consequent upon them, and the emotions—which also belong to the rational feelings—produce movements in the human body, is a truth which these patent facts of every day experience place beyond the possibility of doubt.

1881. Nevertheless, philosophers, ignoring a point that is so luminous and undeniable, being certified by our consciousness, have occupied themselves for the most part only with the phenomenon of accidental and transitive sensation. And having observed that this never arises except when a movement is impressed upon the nervous fibres, they have precipitately concluded that this movement of the fibres is the first phenomenon, and that the feeling follows it as an effect follows its cause. They did not reflect that the fibre would give no sensation, if it had not sense in itself beforehand, as is shown by the fact that these same movements in a dead and insensitive fibre produce nothing; nor did they consider the nature of sensation, which can be nothing else than the modification and excitation of a previous feeling. In a word, they did not succeed in grasping the great fact that there is a fundamental feeling, having as its term a corporeal extended, and compelled to modify itself and to undergo excitation through the movements provoked in this term, so that the true efficient course of sensation is, not the movements, but this preceding feeling, which is modified at the same time as its extra-subjective body is moved; because it adheres to this body, or more correctly speaking, because the continuous body subsists in it.

1882. Another cause of the illusion into which these philosophers have fallen in so important a matter was the following. There are extra-subjective bodies in whose movements no sensation is presented to us, for the reason that neither our consciousness bears us evidence of it, nor

analogy enables us to conjecture it, since we cannot observe in those bodies extra-subjective movements similar to those which in our own bodies we know through internal consciousness to be effects of feeling. Hence they concluded that there is no feeling in them, and that the apparent movements come from an unknown something, from a senseless force. For this reason it *was imagined* that there exists a *brute force*, that is, a cause of mere local movements without being united or related to any feeling. No examination was made to see whether this *hypothesis* involved anything strange, or even absurd, as is the notion that there could be a being having an existence merely relative to another that observes it, without being joined to any *internal principle*.

We may meditate as long as we choose in order to find out what an *internal principle* properly is, we shall never find any other that can be so called in any true and rigorous sense, except a *sensitive* or *resultative** *subject*. Indeed, although we may consider one body as inside another, and, therefore, a contained body which we call internal in relation to that which contains it and which we call external, still, we can have no other notion of the contained body than that of an external being, that is, a being falling under extra-subjective observation. All the experimental knowledge that we have of bodies, when carefully considered, resolves itself into knowledge of surfaces, because to divide a body is merely to lay bare new surfaces, therefore always surfaces, so that no one has ever found in a body anything that was truly internal. This *internal* has never been seen; it is merely the human *imagination* that has always supposed some *substratum* which continually withdraws from the senses and hides itself farther back, something that is *per se* internal in bodies.

But even granting the possibility of this internal something forming the essence of bodies, this something which has been called brute force, when it is considered as

* *Resultative*, that is resulting from the union of sense with intelligence, as in the case of man.—(TR.)

separate from all other principle (from the corporeal principle)* and as being in itself, it will never be more than a mere hypothesis, a being gratuitously affirmed, nothing more.

It follows that the existence of *mere motive forces* is not proved, and, therefore, when such abstract entities, similar to the occult qualities of the Peripatetics, are assumed to explain the movements of the animal body, this is merely calling in the aid of a cause which is at least uncertain and altogether unknown, and does not preclude the opposite opinion, which asserts that a sensitive and living principle is the cause even of those movements which we see spring up in bodies in which phenomena analogous to those of our own feeling are not manifested. The difference between these two opinions lies in this, that we know for certain that feeling contains a locomotive activity, and, therefore, in holding this opinion we look for the explanation of the phenomena in a cause whose existence is proved, whereas it is impossible, by any argument, to prove that there truly exists a cause which is capable of producing local movement and is devoid of all feeling, and yet is by itself a being. This hypothesis, therefore, is vitiated in many respects, and especially in this, that it lacks one of the principal conditions which an hypothesis ought to have, namely, that "the existence of the cause hypothetically assumed to explain a given class of facts should be proved."

1883. In spite of all this we find in Physiology a manifest progress toward the truth. Indeed, a good step forward was taken from the moment that physiologists discovered that in order to explain animal phenomena, and especially those of sympathy, recourse must be had to a *single principle*. And this is now openly avowed also in France. The error of Bichat, who distinguished between

* We do not deny that there exists *brute force*, and that it is conceived by the human mind, and is, therefore, with good reason called *substance*; but we do deny that this substance can exist

really alone, without being united to a sensitive and active principle which remains unknown to us, but whose existence we infer from purely ontological principles.

animal life and *organic life*,* ascribing to each the two properties of *sensitivity* and *contractility*, and hence distinguishing sympathies of *animal* sensitivity and contractility from sympathies of *organic* sensitivity and contractility, is recognized in his own country. It is there admitted that, by an abuse of abstraction, he divided what was simple. G. B. Monfalcon, for example, wisely observes: "Life is one and simple; the physiological individuality is now proved; the vital properties are *abstractions*, which help to obscure this great principle. Animal sensibility and contractility, and organic sensibility and contractility, not only explain nothing, but they give, besides, an incorrect idea of life. Each of these animal properties is an *ens rationis*, whose independent existence cannot be conceived."† Thus the physicians of France agree with those of Italy in recognizing a single principle, to which animal phenomena, and especially the sympathies, are to be referred.

Nevertheless, we repeat, no one has yet seen the fundamental classification of animal phenomena into *extra-subjective* and *subjective*.

* *Anthropology*, 84-91.

† *Dictionnaire des Sciences Médicales*, art. *Sympathie*. This sensible observation, that the vital forces (and the same may be said of the single vital force when separated from feeling) are mere vain abstractions, had already been made, we believe, toward the end of the seventeenth century and the beginning of the eighteenth. What else was meant by that most acute observer George Ernest Stahl, with whom the

prevalent sensism waged so fierce and unjust a war, when he inveighed against *abstraction* which those abused who made life to consist in motion? In fact, to lay down a cause of motion altogether void of feeling is simply to lay down an *abstract cause*, an arbitrary and occult creation of the mind, a name and nothing more. See Stahl's dissertation *De Febris rationali Ratione* (Halæ Magdeb. 1702). Where Stahl erred we have tried to show above, 399.

CHAPTER X.

APPLICATION OF THE THEORY SET FORTH TO THE EXPLANATION OF THE PHENOMENA OF SYMPATHY BETWEEN THE DIFFERENT PARTS OF THE LIVING BODY.

1884. Starting, then, from a cause whose existence and power to produce motion are proved, in other words, from a sensitive principle, let us now try to apply this cause to the explanation of the harmonious complex of animal phenomena; and if it shall seem by itself sufficient even for this, will it not be useless to imagine any other occult cause? And how much more will this be the case if the occult cause proposed turns out to be insufficient to explain the phenomena, while the certain and patent cause is fully equal to the task? Let us begin, then, with the phenomenon of the sympathies, and, first of all, let us determine what breadth of signification we must give to this word.

ARTICLE I.

What the Author means by Sympathy.

1885. Modern physiologists deny the name of sympathy to an affection aroused in any part of the human body in consequence of an irritation or affection of another organ, when there is a known connexion between the two organs. Mr. Roux, of the school of Bichat, maintains that a phenomenon is sympathetic only when it cannot be explained by reference to any one of the three excitors of vital properties, the brain which transmits excitation through the nerves, the action of external bodies, and the fluid substances belonging to the animal body. But the definition of sym-

pathy, when restricted to such limits, labours under two disadvantages.

1° It is a definition founded rather upon ignorance than upon the nature of the thing, and, therefore, what is now called sympathy would cease to be such the moment that the progresses of science enabled us to discover between the sympathetic organs communications hitherto unknown.

2° It is a definition resting upon an erroneous supposition, which is that there are between organs material communications capable by themselves of explaining the affections which are communicated in the order of feeling, whereas the truth is that no material communication, no continuity or contiguity of parts, no movement of fibres, no ramification of vessels can produce sensible effects, or anything but movements, unless we suppose a preceding feeling, and a sentient principle altogether different from the corporeal extended. Moreover, even in the order of movement, mere material communication between organs does not suffice to explain certain movements which exceed the quantity of the material forces employed to produce them, and which are not subject to the laws of excited motion. For these reasons it is necessary to have recourse to a principle of motion different from that of said material forces; and this principle is either the activity itself of feeling, as we believe, or else a being gratuitously supposed by the imagination which gives body to an abstraction, as our adversaries maintain, but always foreign to the material communication between the parts of the human machine.*

* Barthez's definition of sympathy partly avoids this difficulty: "An organ," he says, "is in sympathy with another, when a certain impression perceived by the cause of *vital individuality* in one of these organs determines this cause to produce in the other an *unusual* affection of sensation, or of motion, or of any other kind." But why restrict the definition to an *unusual* affection? Might there not be an unusual affection that was of essentially the same nature as a usual one, so that the latter might be reduced to the former and explained

by means of it? Is it not better that the definition should take hold of the very nature of the thing defined rather than of a mere accident like the manifestation of a phenomenon in a usual or unusual form? Besides this, Barthez distinguishes *synergies* (*συνεργισμοί*) from *sympathies*, using the former term to mean the passions, the latter to mean the increase of activity, which one organ receives in consequence of the affection of another. But to us this distinction seems subtle and of very little use in an inquiry like ours, in which we are trying

1886. Accordingly, we prefer to take the word sympathy in its most extensive signification, to mean "the vital *consensus* existing between the different parts of a living body;" and to sympathy taken in this large signification we will now apply the theory, previously set forth, that the sensitive principle is the cause of motion. In other words, we shall try to show that by means of this cause, without any other, it is possible to explain the phenomena of sympathy, which are neither mechanical, nor physical, nor chemical, but simply *vital* and animal, although they presuppose and require as a prior condition of their manifestation and existence a mechanism, an organization, communications between filaments, contiguities and continuities of tissues, vessels, &c.

ARTICLE II.

The Author excludes from the Explanation about to be given the Intellective Principle and Stahl's Final Causes.

1887. In man, besides the sensitive principle, there is the intellective principle which influences the sensitive, dominates it, moves it to action, withholds it from action, modifies its action, without thereby changing its nature or destroying the laws of animal feeling. The intellective principle, on the other hand, does nothing in the human body except through the sensitive principle (306—390). We shall, therefore, speak only of the latter and leave aside the intellectual activity altogether.

to discover the cause of the animal *consensus* seen to exist between the different parts of a living body, apart altogether from the question whether this *consensus* manifests itself because (1) the passion of one organ communicates a similar or different passion to another, or (2) because the passion of one organ excites a given action in another, or (3) because the increased action of one organ communicates a given passion to another, or (4) because the increased action of one organ communicates a similar or different action to another. We might,

indeed, give four names to these four classes of phenomena, but perhaps we should thereby only be overloading the already too cumbrous vocabulary of medicine. On the other hand, there is no action in the animal body that is not conjoined with a passion, and no passion that does not include some action; for which reason it would be impossible to draw an exact line of demarcation between passion and action. For us, therefore, it is sufficient to have indicated these differences without, perhaps, making any use of them.

1888. But, before proceeding further, we will make one more observation, namely, that it is an error to speak of animal actions in such a way as to lead to the supposition that the *sensitive principle* acts with a *known purpose*. It cannot be denied that the Animists have abused final causes in pretending that the operative principle in animal phenomena knew the end for which it operated. This error was due to another, that which confounded the intellectual principle with the sensitive; and, besides, it included a third error. Indeed, even the intellectual principle in man, does not always act for a known end distinct from the action itself. It also often acts as an instinct following a law of nature, that law which governs the dynamic *nexus* between the intellectual principle and the body. We have already observed, that a sudden piece of bad news, for example, causes disturbance in the animality. The intellectual principle which has received this news does not in the least desire these disturbances or have any reason for determining itself to produce them, and yet they are produced, involuntarily, that is, by a necessity of nature. The intellectual principle, therefore, influences the body with a purpose only when the movement which it produces in the body is an object of its attention and volition, and then the end has not necessarily any reference to the well-being of the body, but often quite the reverse, as is the case with suicides and those who mortify their bodies in order to render them subservient to the higher aims of moral virtue. Much less can the principle of animal activity act in accordance with a known aim (its actions are, however, ordered and reach an end intended by the Creator); it acts according to laws which are spontaneous and necessary, not free, laws that depend upon this formula: "Feeling tends to preserve and increase itself, that is, it disposes and posits itself in the way that is most pleasant to it (and this way is the most natural, because its nature consists in the act of feeling); and it avoids that way which is painful to it, that is, which is contrary to its natural act."

ARTICLE III.

What are the Animal Movements to be Explained?

1889. Having placed the essence of the animal in feeling,* we must not recognise any other certain and proper characteristic of animal motions but this, that "there is proof of the existence of some feeling accompanying these motions."

In order, therefore, to admit the existence of life, or of the vital principle, it is not enough for us that there should be an organism, that is, a machine ingeniously put together, nor even that there should be organic movements, unless these movements are such as presuppose the existence of some feeling.

Hence, even if we apply material agents to an animal body, the movements which they produce begin to be animal only when sensation begins, so that although, before sensation, there may have been stimuli and movements, still these do not belong to the animal, until the animal has begun to make use of its own activity, which consists in feeling. In a word, the principle of all truly animal movements lies in feeling alone. The two following propositions will serve to illustrate this truth.

ARTICLE IV.

PROPOSITION I.

Experience attests that many movements and functions of the living body are produced by the Sensitive activity; hence, that feeling includes a locomotive force.

1890. 1° Sometimes the feeling from which the animal action or passion sets out is an external sensation.—If we goad or strike an animal, it runs away. The activity which it displays in its motion begins evidently with the sensation of pain. This sensation of pain associated with the imagination of a state free from pain and of move-

* *Anthropology*, 45, 53-55.

ments leading to that state, are the three elements which the *unitive force* unites into one, and which determine the action of this motion. This running away is an action of the sensual instinct * belonging to *aversive mobility* (1810).

1891. Here it must be observed that whenever the animal action or function is not determined by a single sensation, but by an association of sensations, imaginations, &c., the instinct simulates the *will*, because the movements which follow are not exactly proportioned to the single sensations, but to the total impression; hence they seem to have something of free will about them, though in truth they have not.

1892. The sensation of pain determines the animal not only to large motions, like those indicated, but likewise to minute movements, like those that take place in the secretions.—The pains which children feel during the process of dentition cause relaxation of body, vomiting, coughing, &c. Here the suffering animal principle plainly produces those small internal movements which give rise to such phenomena.

1893. 2° Sometimes the feeling from which the animal action or passion sets out is a sensation of the inner walls of the animal body.—The titillation of the uvula produces vomiting. This sensation is not associated with any imagination; but the movement begun in it, in consequence of the *animal spontaneity*, upsets the stomach. In movements of this sort, the instinctive character is more evident, for the reason given that the movement is excited solely by the sensation which initiates a motion that spontaneously continues and complicates itself.—The same may be said of the titillation of the nostrils which causes sneezing, a still more complicated movement; the same of the feeling of nausea by which emetics set in motion the nerves and muscles of the stomach; the same of excrements, and of purgatives that irritate the intestines and provoke evacuation.—In all these cases it is plain that the dis-

* We take it for granted that the reader is acquainted with the manner in which the animal instinctively acts. See *Anthropology*, 367-494.

agreeable feeling manifested in the inner walls of the body is the beginning of the animal activity. This activity is roused to action because it feels discomfort. The sensitive principle rebels against the discomfort which it feels, and brings into action several organs in order to get rid of it. The sensual instinct acts here, again, with its *aversive* mobility, withdrawing itself from the painful sensation and making itself, as far as possible, independent of it. And from all these efforts on its part there follows an effect which is certainly due to the most cunning construction of the animal machine, the work of the Creator, and consists in the expulsion of the foreign body or of the stimulus which causes the discomfort. Indeed, we must carefully observe that what the sensitive principle tends to, is solely to free itself from the discomfort which it feels. Its action, and the term of the same, never go beyond the subjective order, to which are due the corresponding movements in the animate body. Now the expulsion of the foreign body follows as a physical consequence of these efforts, without, properly speaking, being at all *intentional*.* This observation is very important, as we shall see, for the explanation of other phenomena.

1894. 3° Sometimes the feeling with which the animal function begins belongs to the imagination. At the sight of an appetising dish of food, an abundant secretion of saliva is provoked. Here it is the imagination of the taste that starts this activity, the truth being that the soul with its activity co-operates in all sensations.† In this fact we see that the sensitive principle determined by the imagina-

* For example, the disagreeable tickling of the uvula determines the effort to make it cease in this way. The sensitive principle, tending to free itself from that disagreeable sensation, sets in motion the pneumo-gastric nerves under the influence of which the muscular plane of the stomach contracts. The movement which is communicated by the sensitive principle to these nerves begins, I believe, in the brain, where these nerves have their origin. Brechet thinks that if the irritation produced in

the throat to excite vomiting affects the nerves of the tongue and pharynx, the motion may pass from these to the eighth pair, which would carry it on to the stomach without its having to pass through the brain. But considering that the sensiferous movement is certainly transmitted to the brain, since otherwise there would be no sensation, it seems after all probable to me, that the animal movement in question must likewise have its origin in the brain.

† *Anthropology*, 338, 369.

tion, which is an internal sense, acts upon the ganglionic system, which governs the secretory, exhalatory and inflammatory phenomena. It is the sensual instinct that acts with its *concupiscent mobility* (1807).

The secretion of saliva at the sight of an appetising dish is a very clear example of the minute movements which the sensitive principle is capable of producing by means of *concupiscent mobility*. Innumerable are the similar examples which show this power of feeling over the minute movements of the body, which I should most willingly denominate, with Stahl, *tonic movements*. The sight of a disgusting thing causes vomiting in persons who are delicate, as women are especially at certain times, and takes away their appetite.

It has happened that the mere sight of a medicine that had been taken several times with injury to the health, at once caused pains in the bowels and produced abundant evacuations, just as if the patient had taken it.* Here we find the imagination sympathetically moving the stomach and the intestines (*recalcitrant sympathetic mobility*, 1809).

1895. But the same principle, the same sensual instinct, is what, chiefly through *concupiscent mobility*, moves the famished animal to make all those movements that are necessary in order to procure food, and, in general, to satisfy all the needs that make themselves felt in animality, including that of propagation. It is always the assuming of an attitude, or a moving in consequence of feeling, of a discomfort, or of an incipient pleasure that is trying to be perfected, no matter whether it seeks the means to this end by external movements (*concupiscent mobility*) or, having found the spring of the pleasure itself, perfects it by means of its own activity, and immerses itself in it until it is completely satisfied (*voluptuous mobility*, 1808).

1896. As the small secretory, tonic movements show

* Although the thing is well known, *Hafniens.* Tom. v, observ. 49) and see examples in Olaf Borch (*Art. Med.* others.

the power of the sensitive principle over the ganglionic nervous system, so the large movements show the power of the sensitive principle which acts upon the cerebro-spinal nervous system. Nevertheless we must observe that the action of the cerebro-spinal system is never altogether absent, even when the sensitive principle acts to move the ganglionic system.

1897. 4° Thus far we have seen the motor power of the sensitive principle, supposing that this power acts in consequence of *figurate feelings*, such as the external sensations and the images. We have likewise in part seen its motor power acting in consequence of feelings which have little or no figure, like the sensations provoked in the surfaces of the inner walls of the body, or in consequence of imaginations associated with external feelings. The non-figurate feelings, being without precise outlines, or any apparent relative locality, more readily escape observation and consciousness, and when the sensitive principle moves in consequence of their excitement, its movement seems external to feeling, although, if we observe carefully, we shall certainly find that this is not the case. Let us, therefore, go on and adduce other facts, to direct attention to the activity which feeling displays in producing movements, great and small, and, consequently the most various modifications in the animal body.

1898. 5° Sometimes the feeling with which the movements and functions of the body begin consists in certain sensations of internal discomfort diffused over a large portion, or even the whole, of the animal body; and for these diffused sensations the animal, with its sensual activity, tries to substitute other sensations equally diffused but agreeable, by means of the movements and functions performed by it.—The animal is induced to breathe through the discomfort which it feels from not breathing and the pleasure which it finds in breathing. This most important function of animal life has a principal influence in maintaining the continual excitation of the fundamental feeling. Here the *vital instinct* with its excitant function is manifestly the

first cause of the movements of the lungs, the heart and all the organs, small and great, that coöperate in the circulation.

The operation of birth is the effect of the discomfort which the mature foetus feels in the confinement of its mother's womb, and the discomfort which the mother feels through its efforts. Both these discomforts contribute to cause the birth.*

1899. All the vital functions are determined by pain and pleasure, that is, by the necessity of performing those functions in order to avoid the discomfort which nature would feel, if it did not perform them, and by the pleasure of life which it feels when it does perform them. What is it, for example, that induces the animal to eat, but its eagerness to get rid of the discomfort of hunger, and the delight which it feels in feeding itself? A delight, be it observed, that does not stop merely with the *taste*, but satisfies also the *alimentary sense*.† The same may be said of the generative function and every other function of the animal body. We must, therefore, have recourse to *sense* in order to explain the animal functions, and consequently, to the *sensitive principle*.

1900. It should be distinctly remembered, that every function of the animal body implies, 1° that there is a sensitive principle which moves and directs it; 2° that this principle is simple. It is a very common delusion to think that when we see certain complicated actions taking place in the animal, all conspiring to produce an effect beneficial to the animal, these are sufficiently explained by having the name of *function* applied to them. A word more or less does not make science. If, therefore, we consider any animal function without prepossessions, we shall be forced to find in it a most manifest proof of the unity and simplicity of a sensitive principle, its cause and regulator.

* A most beautiful description of birth as the simultaneous work of the sensitive soul of the foetus and that of the mother may be read in the Intro-

duction to Francis Nicholls' *De Anima Medica* (London, 1775), pp. 22 sqq.

† *Anthropology*, 408-411.

1901. In fact, all animal functions may be reduced to two classes:

1° Those whose scope and result are the *fundamental feeling*, and which belong to the *vital instinct* (1785);

2° Those whose scope and result are *actual sensation*, and which belong to the *sensual instinct* (1801.)

1902. The fundamental feeling results from two elements: the felt continuous and perpetual circular excitation. Hence the *functions of the vital instinct* may be thus classified:

Class I.—Functions whose term and scope is the *continuous*, and which may be subdivided into

1° Those tending to prevent the felt continuous from diminishing;

2° Those tending to make the felt continuous increase.

Class II.—Function whose scope is *excitation*, and which may be subdivided into

1° Functions tending to prevent excitation from diminishing;

2° Functions tending to increase excitation;

3° Functions tending to prevent excitation from being disturbed or disordered;

4° Functions tending to restore disturbed or disordered excitation to order.

1903. To enumerate all the classes of the functions of the *sensual instinct* according to their proximate effects and purposes would carry us too far, because in that case we should have to classify all the kinds of special sensations of which feeling is susceptible, and to describe the instinctive actions which follow from them and to which we should have to attribute four or more purposes, viz., 1° to keep sensation alive, 2° to increase it, 3° to struggle against the forces that disturb excitement, 4° to diminish the pain that comes from this struggle, 5° to struggle against the difficulties that oppose themselves to all these purposes (by means of wrathful aversion, 1811). And after this we should have to add the function that tends to harmonize the sen-

sions, so as to bring about a state of satisfaction and rest, and remove the state of dissatisfaction and unrest.

1904. The little that is here said, however, seems to us sufficient to show that the purpose of every function is a feeling to be preserved or improved, and hence that its *cause* can be no other than a sensitive activity.

1905. Moreover, the nature of every one of these functions requires that this cause should be simple. Indeed, every function is made up of simultaneous and successive movements all conspiring to a given end. If the cause producing them were not one and perfectly simple, they could not be reduced to that unity, to which they all, without exception, tend. In addition to this, the function, although so manifold in respect to the parts of the body that take part in it, the movements of these parts, and the moments in which these movements take place, nevertheless is performed in such a way as to be felt as only a single act. The animal, so far as its feeling is concerned, aims at doing but one thing, at performing a single action, feels that it is acting with a single activity, and requires to put forth for the purpose but a single imperative act. This is what is attested to man by consciousness as well as what is expressed by language. We call nutrition, respiration, and generation by a single term, and it requires laborious, and, properly speaking, scientific reflection, in order to break up and analyze these functions, distinguishing their parts, and the single acts that go to form them. The generality of men know them only in their entirety, in their unity. With this unity these functions come into consciousness, and it is only with great labour and by dint of observations and meditations that man afterwards knows them in those parts, which are parts only because he distinguishes them, and so creates them; but they do not exist separate in nature, or in feeling, or in the instinctive activity. Every animal function, therefore, is a complete demonstration of the simplicity of the sensitive soul.

1906. Moreover, if we reflect that the animal never acts otherwise than through functions, that is, through groups

of acts and movements tending to a single end,* we shall be obliged by reason to conclude that everything that the animal does, without exception, proves the simplicity of its principle.

ARTICLE V.

PROPOSITION II.

Even when at first sight it does not seem that the animal movements proceed from the Sensitive activity, we must reasonably presume that they are generated by it.

1907. That feeling, therefore, contains an instinctive locomotive activity is an undoubted fact, and it is from such facts as this, well ascertained, that we must start in order to explain phenomena.

In like manner it is certain that this motor activity concealed in feeling is sufficient to explain all animal movements, all the functions of the human body; and, consequently, it is both superfluous and arbitrary to introduce another *cause*, which, after all, would be nothing more than an unknown *something*. Such mode of proceeding is contrary to the most irrefragable principles of logic and cosmology, such as those of *sufficient reason*, and of the *parsimony of nature*.

1908. It may be objected that man has not always, that is, in every action of his animality, the consciousness that the principle of such action is a feeling. To this we make two replies.

First.—In the same animal body there may be several partial sensitive feelings, and hence several sensitive principles, which are but feebly connected with the supreme sensitive principle, which is what properly constitutes the animal. Now these partial principles not

* If we consider carefully, we shall see that even the simplest actions of the animal are true functions, because it never makes only one movement with one element, but always many movements with many elements and parts brought into motion. Indeed, how

many elements and parts are set in motion even in a single external sensation, seeing that this does not take place without a process in which the whole nervous system, and especially the brain, takes part!

being in close connection with the supreme principle, and being but slightly dominated and governed by it, all the sensations which immediately belong to these special principles are but slightly sensible to the animal, and so it seems that the various principal systems and organs of the human body enjoy a special life of their own, not so special, however, as to be entirely separated and divided from the general life and feeling. The less such sensations are subordinated to that sentient principle which constitutes the animal individual, the more easily do they escape intellective consciousness.

1909. *Second*.—The objection is based in large measure upon a false supposition. Indeed, many persons confound consciousness with feeling, and consider the former as an element of the latter. Such persons must persevere in meditation until they are convinced that *consciousness and feeling* are two widely different things, the one belonging to the intellective order, the other to the animal order.

Now, any one who is able clearly to separate the intellective element, which is the origin of consciousness, from animal feeling, will readily persuade himself that there are feelings in us of which we are not conscious; indeed, that these feelings are innumerable, including all those upon which we do not reflect, to which our intellective attention is not drawn. He will also see that it is not equally easy to render ourselves conscious of every one of our feelings; that we can form the consciousness of some without difficulty, whereas there are others which we can discover in ourselves only with the greatest pains, and after having long searched for them in the profoundest quiet of meditation. And even in the case of those of which we may have consciousness, we can have this consciousness only on condition of forming it, although it seems to us that we have it habitually on account of the great readiness with which we form it. And we never form it without having a reason moving us to do so. For example, if when we are closely engaged in conversation

with a friend we suddenly break off and ask him if he is conscious of having a fly on his hand, he will say "Yes;" not because he was conscious of it before we put the question, when he was absorbed in speaking of something else, but because, moved by our interrogation, he instantly turned his attention to the little animal running on his hand. All that was required, therefore, was that we should rouse his attention, that he should will, and the consciousness was. He does not reflect how this consciousness begins; he thinks that he always had it, and not that he formed it at that moment.

1910. Now, it is easy to acquire the consciousness of new feelings which are actual and vivid, whereas it is difficult to acquire that of old, habitual and slight feelings. And yet very minute feelings, when they are very numerous and widely spread, have the power to bring the largest muscles into action. What is *ennui*, for example, but a fusion of many very small feelings, of each of which we are not, for the most part, conscious? And yet does it not produce yawning, a function in which a great number of muscles, and especially the diaphragm, are set in motion? Again, what is tickling but a function of small feelings, as numerous as the almost numberless minute nervous filaments which terminate in the epidermis, and of which separately we have no consciousness whereby we could distinguish the one from the other? And yet what terrible effects are produced by tickling, the irritation of which moves the muscles of the stomach to vomiting, acts on the brain, causing convulsive movements, reaches the heart and paralyzes it, causing syncope and even death! How often does it happen that we are not conscious of the state of our skin, when it is relaxed and perspiring, as well as of the impression of the air which cools and constipates it? And yet this is sufficient to cause a disturbance in the entire economy of the body, affecting especially the mucous membranes and causing inflammation of the pleura, the lungs, the stomach, the intestines or the bladder! Those first skin-sensations escaped our con-

sciousness, because, though very numerous and widely diffused, they were very small, and we paid no attention to them. And yet we must trace to these sensations the morbid effects that followed from them.*

1911. In diseases in which no acute pains are manifested, it is usually believed that there are no painful sensations, because this expression is restricted to signify local and vivid sensations. The patient himself, if asked, says he feels no pain. But the truth is, there is no malady of any kind in which the patient does not suffer disagreeable feelings, whether he be conscious of them or not. If a sick man had all his feelings perfectly the same as those of a man in health, he would not be sick. A certain discomfort, a certain want of will and appetite, a muscular enfeeblement, heat, cold, and an infinite number of other diffused, general sensations resulting from an infinity of small minor sensations, prove that the affection of the sensitivity is never absent in any malady. Hence, if we consider the *sensitive activity* as the cause of pathological sympathies, we have recourse to a cause whose existence is proved, and not to an entity merely supposed by the imagination, like the vitality of some writers, which, with-

* Bichat makes the remark that these morbid effects are not to be attributed to checked perspiration, as if the perspiration went back and acted mechanically, but to the alteration of the vital forces of the skin; because, otherwise, every cessation of perspiration ought to be equally hurtful, whereas, in consumptive persons, the momentary interruption of perspiration is not particularly injurious (*Anatomie générale: Système dermoïde*). It is certain that even cold contributes mechanically to contract the tissue of the skin; but no harm would arise from this to the animal body, if no other effect followed. All would be finished in the skin itself, which may be healthy in a state of contraction as well as in a state of relaxation. The animal phenomenon begins after this mechanical action: cold is only the external stimulus. This stimulus first produces the sensation of cold; this sensation modifies the sensitive principle, and sets its activity

in motion; this activity of the sensitive principle sets in motion the nervous system, and hence causes all those phenomena that follow the first contraction of the skin. The external openings being closed, the inhaling ones enlarge internally; for example, those of the pleura, which instead of receiving the serum of the blood, receive the blood itself, and this causes inflammation.—So true is it that cold upon the skin does not produce inflammation in a mechanical way, that inflammation may even arise from too much heat. Too great a stimulus either of heat or of cold, I believe, induces the animal principle to withdraw and close the extreme nervous papillæ against the disagreeable sensation, and the closing determines the humours to flow back from this part to the opposite one, and opens a way for the blood to diffuse itself especially in the mucous membranes. See *Anthropology*, 355-365.

out being itself feeling, is supposed to be the cause both of feeling and of movement.

1912. All the phenomena of diseased sympathies confirm the belief that these must be ascribed to the sensitive principle as their true cause. Broussais and his disciples, Caignon and Guémont, who have made some additions to his lectures on inflammation, have discovered, 1° That diseased sympathies manifest themselves with more force and readiness in very sensitive individuals than in apathetic ones. It is plain, for this reason, that persons endowed with great sensitivity are more subject than others to hypochondria; 2° That the animal functions suffer most if the organs affected have a large number of nerves and, hence, are very sensitive; 3° That when the irritation or inflammation becomes painful, the sympathies display greater activity. All this goes to show that sympathetic diseased alterations advance in exact proportion to the affection of the sensitive principle, and that this, therefore, is their true cause.

1913. If physicians have not yet succeeded in seizing this doctrine, they are, nevertheless, on the way to it, and every day come nearer and nearer to it. Barthez considers the sympathies as the effects of the vital principle in the different parts of the living body, and infers this from the simple evident fact that they manifest themselves even in organs that are far apart from each other, without its being possible to refer them to a mechanical communication between these organs, since such does not exist, or to attribute them to chance, since they follow fixed laws. Barthez, therefore, had only to go one step further, and then he would have discovered that the vital principle is essentially sensitive, that its motor energy is not something different from sensitivity, being only a continuation of the energy of feeling.

1914. Later physicians are almost all agreed in considering the nervous system as the general instrument of all the sympathies, physiological and pathological, natural and artificial, that manifest themselves in the living body.

Brachet, in his excellent prize-essay *On the Functions of the ganglionic Nervous System*, replying to those who would attribute the sympathies to the cellular system, because it is spread over the whole body, says: "To remove this objection, we have only to remember that the two nervous systems alone govern the exercise of all the functions, and, therefore, alone can maintain sympathetic relations among all the organs, these relations being merely actions or functions; whereas the cellular system does not govern the exercise of any function. We may, perhaps, call this system the material and support of the organs, but it brings them neither life nor sensation, nor will." * Hence he divides the sympathies into *cerebral*, *ganglionic* and *mixed*.

1915. Here I must observe that it is an error to suppose that the ganglionic system is altogether devoid of feeling; on the contrary, it is, properly speaking, the organ of the passions. We have distinguished feelings into *figurate* and *non-figurate*; these two classes correspond to the two nervous systems. The cerebral system is the organ of the figurate feelings, the ganglionic that of the non-figurate. Feeling is never absent from either.

Moreover, the ganglionic system communicates with the cerebro-spinal system. The two series of ganglia that run along the vertebral column, communicate frequently and directly with the cerebral and rachidean nerves; and the central ganglia inosculate with a pair of cerebral nerves, that is, with the pneumo-gastric nerve, and are also in continual communication with the lateral ganglia, through which they communicate anew with the cerebral system. Hence the cerebro-spinal system can never be supposed to be entirely a stranger to the impressions received by the ganglionic system. Thus there does not, perhaps, exist a merely ganglionic sensitivity, and, therefore, Brachet's classification of sympathies ought to be re-

* Chap. viii. We need not call attention here to the ordinary abuse of the word *will*.

stricted to two divisions, the *cerebral* and the *mixed*, with sub-divisions of the latter.*

1916. In confirmation of the intervention of the cerebral system in all these sympathies, we may quote the opinion of Barbier and other physiologists regarding the manner in which remedies operate. These writers maintain that it is always to the cerebral apparatus that we must look for the secret of the transmission of that medicative power with which various substances are endowed, and they refer especially to those substances which, not acting by means of the circulation, manifest the sympathies more promptly by acting directly on the gastric organ.†

ARTICLE VI.

Explanation of the Sympathies between the symmetrical parts of the human body, and between those that have a similar construction, as well as of the Sympathies occurring in the Exercise of the Animal Functions.

1917. Taking it for granted, then, that in the series of animal phenomena which succeed each other in the sympathies, the first phenomenon and the cause of all the rest is feeling, we find that many facts receive a most ready explanation; and this by itself is an additional proof of the truth of our proposition.

1918. Let us begin with the sympathies that manifest themselves between the organs located symmetrically in the two vertical halves of the human body, *e.g.*, the eyes, ears, nostrils, hands, kidneys, &c. It is notorious that the affections of one of these organs are communicated to the other. For example, if one of the optic nerves is affected,

* Broussais, who threw no small light upon the functions of the ganglionic system, never excludes the cerebral system: "The transplanchic nerve," he says, "has never merely the function of modifying the sensations which go from the brain to the viscera or are reflected from the viscera to the brain. This correspondence between the two nervous systems has been established rather for

the purpose of determining indirect movements by means of the reciprocal influence of the two orders of nerves." — *Réflexions sur les fonctions du Système nerveux en général, sur celles du grand sympathique en particulier, et sur quelques autres points de physiologie*—two articles in the *Journal des Sciences Médicales*, November, 1818.
† *Traité de Matière Médicale*, Vol. I.

the other often contracts the same affection. The history of amaurosis and other kinds of blindness proves this. The observation which we wish to make upon this fact is the following:

Although when the organs of the two symmetrical senses are separately stimulated in the proper way, each of them carries sensation to the soul, yet, if the stimulations are simultaneous, the soul receives but a single sensation. This fact has already elsewhere furnished us with a proof of the simplicity of the soul,* and of its distinctness from every bodily organ, and shown us that multiplicity of organs located in different parts of space does not produce multiplicity in the soul, because the soul is free from space; in other words, the diversity of the sensations of the soul is not based upon the diversity of the spaces occupied by the sensorial organs, but only on sensible differences, or differences belonging to the essence of the sensations themselves, which have nothing to do with the differences of spaces.

Now, if it is true that the animal motor activity is inherent in feeling, as we maintain, wherever there is a single sensation there must also be a single motor activity. And this is precisely what happens in the case in question. As the two eyes ordinarily convey to the soul but one visual sensation, so the soul acts upon these two organs with a single act and produces the same effects in both. For this reason, the movements of the eyes are naturally associated, and this may be called a physiological sympathy. For the same reason the diseased affection of one eye is very often felt by the other, and this may be called a pathological sympathy. The same thing may be said with reference to all the double and symmetrical parts of the human body,† which thus become so many proofs of the simplicity of the sensitive principle.

1919. It may be objected that if this were the case, the

* *Anthropology*, 104-126.

† The inflammation of one kidney, for example, readily passes over to the

other, and there is often complete retention of urine due to the disease of one kidney.

diseased sympathies between the symmetrical organs of the human body ought to show themselves in all cases of disease, whereas they do not.

I reply that this objection loses its force as soon as we consider that the symmetrical organs do not always, or necessarily, cause a single sensation to the soul. They do so only when their sensible actions are perfectly homogeneous, differing only in the different spaces in which they (the organs) are located, which different spaces cause the actions to be two in number, although identical in form. It is only in this case that the feeling experienced by the soul is single, and the reason is that the difference in the spaces occupied by the sensories has no relation to the soul, which deals only with the space of the single sensations, and this singleness is based on the nature of the sensitive principle and not upon any habit acquired by it.

1920. But is the condition always satisfied that the *sensible action* of the two organs is identical in form and differs only in number? Certainly not.—On what, then, does its more or less frequent occurrence depend? In very large measure upon the soul itself, which tends to draw a single feeling from the two organs, because two feelings would confuse it in its operation, which is naturally guided by the feelings. This is why it moves the eyes in perfect accord. Indeed, if it turned one eye in one direction, and the other in another, so as to see objects double, it would find itself in a disagreeable contradiction and come in conflict with the sensations of touch, which presents objects single, and hence would not know which to believe, nor how to move its limbs with reference to the external objects of which it stands in need.

Inasmuch, then, as it is of the highest importance for the purposes and necessities of life that the double senses should act with such uniformity as to rouse only one sensation in the soul, the soul by its spontaneity directs them to this end, and the power by which it moves them contracts such a habit of using them in this way that their uniform

action seems *natural* rather than *habitual*. But in fact it may very well come into a man's head to do the contrary; by way of experiment he may force himself to overcome the habit and even succeed in making the pupils diverge; but this never happens in mere animals, because the sensitive principle does not admit such caprices, but always does what is suitable to it.

1921. The simultaneous and uniform action of the symmetrical organs, therefore, is due to *habit*; but it is due to *nature* that, when this simultaneous and symmetrical action takes place, there should arise in the soul a single feeling. Since, therefore, the sympathy of the symmetrical organs must be referred to the *habit* which the sensitive principle has contracted of directing its own sensitivity and the consequent activity in this way, it is no wonder that the habit admits of some exceptions. We shall understand this all the better if we reflect that habit itself acts only when certain conditions are realized, certain opportunities given. Habit is, generally, a faculty of action so precise and determinate that the least difference in the circumstances arrests its operation, as we see in the habit of memory, which enables a person to repeat a whole discourse; the mistake or insertion of a single word may be enough to make him lose the thread of it.

1922. The law of sympathy between the symmetrical organs, arising, as we have said, from the singleness of the feeling which they produce, and of the sensitive activity which springs from this feeling, extends to many other classes of sympathies, which receive a clear explanation from it.

In the first place this law explains the sympathies of all those organs which have similarity of structure. In fact, as soon as we know the law here referred to, namely, that, "if the sensible affection of two organs is perfectly the same in form, the feeling that corresponds to it is single because the difference of space and locality between the organs themselves is not carried into feeling, and therefore, the affections of the similar organs can pene-

trate and unite in that feeling," we may at once deduce as consequences the two following most important laws :

1^o That, since the *fundamental feeling* always exists before *sensation*, whenever there are two or more sensible organs of perfectly similar construction, the fundamental feeling corresponding to them will not be double or multiple, but single, just as if there were but one sensible organ. Now, when we say "a single fundamental feeling," we imply "a single fundamental instinct or activity ;"

2^o That if dissimilar affections are roused in two or more organs of the same structure, these affections are matched by as many sensations or modifications of the fundamental feeling ; but if, on the contrary, the affections of those organs are perfectly alike, the corresponding sensation will be simple ; there will be but one modification of the fundamental feeling.

1923. Now this sameness of sensible affection in organs of uniform structure frequently occurs. Physiologists and pathologists observe that the sympathies between uniform organs manifest themselves only on condition that their first affections, those by which the sympathy is excited, are the same. Monfalcon, in expounding the doctrine of Barthez, says : "The chief condition of the exercise of sympathy in this case is, that the organs resembling each other should be put in unison, so to speak ; in other words, that they should have the most perfect agreement in their physical modifications. When the cellular tissue of the lower extremities is weakened and penetrated by the water of tepid baths, it undergoes an affection exactly similar to that which the lungs undergo when soaked with serosity." And in proof of this he cites the method used by Lieberkunn to cure dropsy of the lungs. This physician by means of foot-baths determined the water which had filtered into the cells of the lungs to flow to the lower extremities, and then cured the œdema of the legs by the use of strengthening remedies.

1924. Let us go on and explain other phenomena. If

a tissue is perfectly homogeneous, there must correspond to it a single feeling, and to a single feeling there must correspond a single animal action. Hence the act of the vital instinct which acts in the whole extent of a homogeneous tissue will be single, consequently, there must necessarily appear sympathies among the similar tissues of the human body, since the affection produced in one part of this kind of tissue modifies that activity which gives life to the entire tissue, whether this extend to only one part of the human body or be repeated in many. And this is the explanation of that pathological law which was considered one of Broussais' most splendid discoveries. This law is, that "When an irritation lasts for some time in an organ, the other tissues analogous to that of the suffering organ gradually tend to contract the same affections." Hence it is that chronic inflammation of the pleura readily communicates itself to the peritoneum; that inflammations of the mucous membrane of the stomach and intestines readily propagate themselves to the interior coating of the pulmonary apparatus; that the affection of one part of the fibrous system in rheumatism and gout is followed by the successive inflammation of all the rest, and the inflammation of the lymphatic ganglia of one part of the body is frequently communicated to the whole of their system.

1925. And here we must observe the difference between two *homogeneous tissues* and two *homogeneous organs* composed of various parts and various tissues, like the eyes. These complicated and cunningly constructed organs admit of a variety of affections, while homogeneous tissues admit of fewer; hence it follows naturally that two tissues fall more readily into unison than two organs. And, since every different sensible affection excites a different activity of the sensitive principle, it follows that the fundamental feeling of two organs, receiving more various modifications, consequently acts more variously than the fundamental feeling of homogeneous tissues. Moreover, in order that there may be sympathy between two organs,

their primitive affections must be the same, and this condition is more easily realized in tissues, which have fewer causes to render their primitive affections, from which all activity finally emanates, dissimilar. In a word, whenever the fundamental feeling common to two homogeneous organs or tissues is modified in those parts with respect to which it is one, sympathy at once manifests itself.

1926. Let us apply this doctrine to functions. What is it that moves the animal to perform a function in which many organs and many different movements of them co-operate simultaneously or successively? A single feeling. From unity of feeling springs unity of function. The unity of feeling is what makes the organs act harmoniously, so that their movements conspire to produce what the animal feeling is seeking, *i.e.*, its own preservation and perfection. What feeling is it that makes the animal breathe, but that of the discomfort and oppression which it experiences from want of breath, and that of the pleasure which is bound up with breathing? And what else makes it, in order to bring about this one effect, set in motion with the most perfect harmony and most suitable measure, not only the pulmonary apparatus, but also the brain and the heart? How, again, is the animal moved to employ so appositely, in their turn, all the parts of the digestive apparatus, with all the vessels that coöperate in nutrition, unless by the uncomfortable feeling of hunger and the pleasant feeling of nourishment? The singleness of the aim in all the most

* I shall here take the liberty of quoting the words of Broussais to describe the manifold sensations which accompany hunger and nutrition, and the manifold actions that accompany these and in their turn produce them—sensations and actions whose complex constitutes the digestive or nutritive function. "The feeling," says this celebrated physician, "which is not limited to the time when the stomach is empty, but in cases of convalescence lasts during digestion, shows us that all the tissues of the body in which the chemistry of life goes on, are in correspondence with the stomach. The disposition of the branches of the great sympathetic nerve

converging towards this *viscus*, shows us the path of this correspondence. The sensation of pain in the epigastrium indicates the seat of that inner sense, from which the brain receives the perception of hunger. It must be the mucous membrane, because as soon as this is touched by food, that sensation disappears. The fact that there is pain or weakness in the muscles during hunger, and pleasure, strength and aptitude for action in these tissues as soon as hunger is appeased, shows that the stomach suffers and enjoys along with the entire locomotive apparatus, or, if the expression be preferred, that the perception of pain or pleasure in

complicated functions of the human body directs the movements of the numerous parts that concur to execute them, and this single aim is purely a matter of feeling. In all cases it is an *acting feeling* that does everything. Now, wherever there is a single feeling, there is also a single action, although it may manifest itself in different parts. It is, therefore, no wonder if among these different parts we discover sympathies physiological as well as pathological, since, if the one action is modified and affected, it must produce its effects simultaneously in all the parts of the body in which it is diffused. These different parts may, of course, receive it differently, either because it is impressed upon them variously according as the harmony of their operations demands, or because they are differently constructed and differently disposed.

1927. This last observation is important, because it enables us to see that different organs may manifest different operations, which, nevertheless, deserve the name of sympathetic, because they are all due to a single action of the sensitive principle.

1928. But, besides these sympathies that present them-

the gastric sense is accompanied by an analogous perception in the muscular system. The sadness, the good humour, the fury that march abreast with the pain and pleasure of which I speak, makes us aware that the *Ego* is hurried along in its judgments by the sensation of pain or pleasure which it receives from the internal gastric sense, and from the tissues which take part in its modifications. The calmness of the circulation during hunger shows us that the forces are directed to the apparatus relative thereto, whose action is necessary in order to satisfy the need. The shiver that follows eating shows the moment when the forces are called to coöperate in digestion. The excitation of the heart, which comes afterwards, and the acceleration of the flow of the blood, which answers to the frequency of the act of respiration, testify to the influence of the stomach upon the heart and lungs. This influence is shown by the increase in the mucous secretion of the lungs even more than by the accele-

ration of the effort to inhale, because this acceleration is also produced by muscular exercise, which shows that it always depends upon the abundance of blood that reaches the lungs. It may often be observed that, even when the stomach is full, the respiration is not accelerated unless digestion is in full activity. Finally, the torpor and sleep which mark the termination of gastric excitation, show that the forces have in great part withdrawn and distributed themselves among the organs of the inner life, and that the brain, which shares in their modification through its vascular system, suffers a compression which for a time suspends the exercise of intelligence." (*Réflexions sur les fonctions du système nerveux en général*, &c., in the *Journal Universel des Sciences Médicales*, November, 1818.) From this excellent description (leaving out of view certain inaccurate expressions) we see how *feeling* presides over the whole function of nutrition.

selves to observation in the various organs that coöperate in a single function, there are others existing between similar functions, that is, between organs destined for functions numerically different, but of the same nature.

Thus Barthez observes that organs having the faculty of secreting analogous humours show a special sympathy with each other. Such, for example, are the uterus, the mamillary glands, the larynx, &c. It is certain that, in order to explain why, when inflammation is roused in one organ, it appears in another and a distant organ without any lesion of the intermediate parts, the communication between the bloodvessels is not sufficient; because in that case the inflammation ought to propagate itself without interruption along the vessels. We must, therefore, have recourse to the laws of the single vital-sensitive principle which directs the whole economy, and therefore the law of which we are speaking falls in very aptly, viz., that "Whenever the function of two organs is similar, so that a single feeling corresponds to them in the soul, the activity of the soul likewise manifests itself in the same way in two or more places." As we have already said, we must carefully observe that every function is exerted by an activity of the soul placed in a single feeling of discomfort or pleasure. If, therefore, the two functions which are exerted in different parts are similar in nature and differ only in the space in which they are exerted, the feeling from which they start must be single, since observation shows that in the animal feeling the differences of mere space belonging to the organs, functions, and affections are not reported, but only those differences which render the functions and affections different in nature.

CHAPTER XI.

APPLICATION OF THE ABOVE THEORY TO THE EXPLANATION
OF THE ACTS OF THE ANIMAL NATURE.

1929. We have already explained the conflict between the *vital instinct* and *brute matter*; is there also a conflict between the *vital instinct* and the *sensual instinct*?

To say that there is would seem to be in accordance with the fact that we have deduced the *medicative forces* of nature from the vital instinct, and the *disturbing forces* from the sensual instinct.* And that there is an appearance of conflict, observation attests without any ambiguity.

But is not this conflict purely apparent? Might we not, in the same way as we attempted to effect a conciliation between the brute forces and the vital instinct, also attempt the same thing in the case of the two instincts? If it appears strange that in nature there should be a radical conflict, is there not something still more strange in the concept of two instincts existing in the same animal and at war with each other—instincts both of which are only activities of one and the same perfectly simple principle?

1930. This question comes to the same as that of the *errors of nature*, on which Stahl wrote a famous dissertation, using the word nature in the sense given to it by Hippocrates, in agreement with whom Galen gave the definition: "Nature is a warm spirit moved by itself" (φύσις ἐστὶ πνεῦμα ἑνδιερμον† ἐξ ἑαυτοῦ κινούμενον)—a definition which in sub-

* *Anthropology*, Bk. II.

† I have not succeeded in finding even among the ancients, at least with any clearness and consistency, the distinction between *subjective* and *extra-subjective* phenomena. They frequently put a word expressing an extra-subjective phenomenon, where it is necessary

to indicate the corresponding subjective phenomenon. We have here an example in Galen, who, in trying to define animal nature, calls it a warm spirit (πνεῦμα ἑνδιερμον). It is clear that the word ἑνδιερμον means merely an extra-subjective property, as in English the word *warm*, when applied to a warm air or a

stance renders the proper and common signification particularly attributed to this word.

Now this question is important, and a fitting opportunity for speaking of it is given us in this place in which we are dealing with the sympathies to be explained by means of the simplicity of the sensitive principle and the natural laws of its action.

1931. Is it true, then, that nature errs and that her errors are the causes of the diseases of the human body? And if we choose to answer in the affirmative, are we to explain the errors of nature, as the animists did, by simply attributing them to the *precipitation* of the exasperated soul, to the *diffidence* of the dismayed soul, to the *inconstancy* of the soul agitated by sufferings? * If so, we should still have to explain this precipitation, diffidence and inconstancy, because such defects cannot constitute the nature of anything, and yet the operations of the soul are

warm body, expresses what produces heat in the sensory of a being capable of this sensation, and not the sensation of heat itself. It is impossible that they should not sometimes have observed the ambiguity of the term, and indeed they did observe it; for it is impossible not to know that warm bodies are not all endowed with the power of feeling. How then were they to get out of the difficulty? By abandoning the principle that heat is the seat of life and feeling? No, indeed; it was too convenient to have found such a seat for them. They, therefore, had recourse to a little distinction. They said: The warm is what gives rise to life and feeling; this is beyond all question; but that is not the *elementary warm*, which occurs even in inanimate bodies. Thus they invented, with a most convenient readiness, two kinds of heat. But, excellent friends! If you no longer mean that warmth which all men feel, and which has been called elementary, what then is this new warmth, which is the principle of life? It must of course be something different from warmth. And, if so, what do we know about it? Nothing: it is *vix, vix prætereaque nihil*. This example of scientific deception and delusion whereby men deceive them-

selves may be found in the work of Fernel, already alluded to, *De Naturali Parte Medicinæ*. In Book IV, chap. i, he lays it down as something unquestionable that what causes life and feeling is warmth: "*Constans enim est,*" he says, "*et rata sententia, omnia quæcumque vivunt propter inclusum in se calorem vivere, illius beneficio alimentum trahere, conficere, coque nutriri ac sustineri, augescere, procreare animantes, præterea SENSU AFFICERE ET MOVERE: quantoque perfectiora hæc fuerint opera, tanto caloris vim atque substantiam uberius concipi.*" Being wedded to this opinion, he cudgels his brains in order to show that this heat cannot be the ordinary and elementary heat, but must be something more sublime, "*supra elementorum naturam esse!*" There is, therefore, in fact, a warmth which is not warmth!

* So says Stahl, *De Naturæ Erroribus Medicis*, Sect. V. F. Nicholls, in the essay already alluded to, *De Anima Medica*, attributes diseases to the weak, inert, incapable, dismayed and discouraged soul, without explaining how the soul, which sometimes is so strong, astute, ready and courageous, has passed over to the opposite qualities.

determined by its nature. We will rather say that nature acts according to infallible and necessary laws, that it never strays from these, that what we call defects and errors of nature are not such in themselves, but only according to certain relations contemplated by us in accordance with preconceived opinions; in a word, that the action of nature is the same when we think that she acts rightly, and when, in virtue of our opinions, we attribute errors to her.

1932. Let us, therefore, investigate the ground of the apparent errors of the animal nature and of the apparent conflict which sometimes arises between the two instincts, the vital and the sensual.

From what we shall say it will appear that the vital instinct, which is the source of the medicative laws of nature, is sometimes limited in its beneficial tendency by brute forces, and that the sensual instinct, on the other hand, itself directly disturbs and disorders the animal nature, without, however, deviating in the slightest degree from its laws.

ARTICLE I.

How the Sensual Instinct disorders the Animal Nature without deviating from its own Laws.

1933. In the distinction between subjective and extra-subjective phenomena we find the means to explain how the sensual instinct disorders animal nature without deviating from its own laws, which it follows invariably in all its operations. We have seen that those two parallel series of phenomena have no resemblance to each other. Hence we could not argumentatively deduce the one from the other *a priori*. The soul, moreover, is simply feeling, and nothing comes within its consciousness that does not first come within its feeling. Supposing, then, that a soul which experienced a subjective phenomenon, had never had any experience of the corresponding extra-subjective phenomenon, it would know nothing about the latter, and

would never be able to discover it, however long it might reflect upon the first. What is more, it would never be able even to suspect its existence.

1934. It follows that the knowledge which we have of the relation existing between the two series of phenomena in question is acquired solely by experience, and that if we now can pass in thought from the subjective phenomena to the extra-subjective, it is because experience has so often shown us that the two co-exist. Being thus instructed, we judge of the existence of the extra-subjective phenomenon from that of the subjective with the greatest readiness, on account of the habit which we have acquired of forming such judgments.

This may be rendered more clear by an example. It is a notorious fact that a person who has had a leg amputated suffers pains in the place formerly occupied by that leg. He is mistaken in referring these pains to that place; but whence comes the erroneous judgment? Of course, from the readiness with which the mind habitually infers from the subjective phenomenon of pain, the extra-subjective phenomenon of the locality of the leg. But, if he had never previously seen or touched, or moved his leg, he would not have known that he had a leg; he would not have known its external form or its locality in relation to the other parts of the body, although he would certainly have had the fundamental feeling of it, devoid of the forms relative to the measured space that extends beyond his body.

This locality, which involves relation to measured external space, has made itself known to him through external or extra-subjective experience, which is totally different and dissimilar from that subjective experience of pain which he is conscious of suffering. But since, on the one hand, his leg has come under his vision and his touch, and so become an extra-subjective phenomenon to him, and, on the other, he has felt pain, a subjective phenomenon, he has been able many times in his life to compare these two phenomena and to recognise that the subjective

pain fell in that extra-subjective locality, an observation which he never could have made, if in the course of his whole life he had had only one of these phenomena, that is, either the pain alone or the extra-subjective perception of the leg alone. Having, therefore, had the two phenomena, and discovered that the one corresponded to the locality of the other, he formed an habitual judgment and persuaded himself that the one could not exist without the other, and, therefore, even after his leg has been amputated, he refers the pain to that extra-subjective locality which remains in his imagination.

1935. The extra-subjective phenomenon, therefore, which accompanies the subjective phenomenon is not comprised in it, is not of the same nature as it, and is not an adequate effect of it. Now what is the action specially belonging to the sensual instinct?

This action is entirely confined to the subjective phenomenon. As we have said, the activity of feeling consists solely in being able to dispose and arrange itself in the way most natural to it; and, since its nature consists in pleasure, the way most natural to it is that which is most pleasurable, most convenient, most easy, least fatiguing, least painful, all of which epithets designate a way in which most pleasure is found.

This being granted, the sensual instinct does not aim at producing extra-subjective phenomena, which are beyond its sphere, and yet these follow its acts as a necessary appendage.

What, then, is the bond between extra-subjective and subjective phenomena as related to the well-being of the animal?

Extra-subjective phenomena have such a bond and correspondence with subjective phenomena that ordinarily, when they succeed these, they contribute to the well-being of the animal, to its preservation and improvement. But this happy correspondence is subject to some exceptions due to certain limits of the animal nature; hence it frequently happens that the extra-subjective phenomena

which follow the subjective are more or less prejudicial, and even fatal, to the animal.

1936. The sensual instinct, therefore, never errs, if we consider its action as it is within its own sphere. It always follows its law of giving to feeling the most pleasant attitude and action of all that are possible to it, viz., that feeling itself can have.* But it cannot prevent the extra-subjective phenomena which correspond to that action from following, whether they be beneficial or otherwise, since such effects do not enter into the sphere of its action.

It follows that when the feeling is excited by any pleasant or painful stimulus, the sensual instinct which immediately moves (and it always moves according to the same law), determines movements which are sometimes beneficial to the animal, sometimes injurious. When such movements are beneficial, we are wont to say that nature acts wisely; when injurious, that it has gone wrong. For example, an honest, moderate joy contributes to good health, increases the forces of the vital instinct, adds to the energy of the functions, whereas an excessive joy causes apoplexy. A case of this happened some years ago in my native town.† When after a long discussion in the municipal council, the motion was carried to recast the bells of St. Mark's, a very zealous citizen died of apoplexy from pure joy.‡ The sensual instinct caused the death of that good man. The joyous feeling kindled in his rational part acted as a stimulus to his animal feeling and the instinct that proceeded from it, and this by its vehemence caused such movements in the extra-subjective

* *Feeling* is formed and posited by that activity which we have called *vital instinct*, and which is limited and conditioned by the mixture and organization of the body. Now this feeling so formed may be greater or less, more or less perfect, and, when excited by stimuli, has the power of seconding the excitation in various ways and directions, among which it always chooses that which is most pleasant and convenient to it.

† Rovereto, in the Tyrol. St. Mark's, of which Rosmini was incumbent for one year, is the principal church of the town.—Tr.

‡ Famous in England in the apoplexy which carried off Roger Hill, the son of Roger. This was due to the sudden joy with which he was seized at the news of the death of his father, a great miser, who, in order to accumulate immense riches, had kept his numerous family in the greatest penury.

machine as to accelerate the course of the blood to the extent of making it burst its vessels and diffuse itself in some part of the brain.*

The sensual instinct does not aim at producing this effect, which is foreign to it, and is due to the substantial nexus between extra-subjective motion and subjective feeling.

Is not the human soul made for happiness? Is it not made for joy? Does it not seem that, as the degree of its joy increases, the perfection of its condition must equally increase? How, then, can there be a degree of joy and, therefore, of perfection which the animal body cannot support and which is followed by the destruction of the human being? Is not such disorder at variance with the concept of perfect human nature? Either we must say that the body is not proportioned to the natural functions of the soul, is not an instrument suitable to it, seeing that it impedes the height and keenness of its enjoyment; or else we must admit that there is a defect in the soul itself, which is too precipitant and vehement in its action, so that through lust of immoderate enjoyment it destroys that compound of which it is the principal part. Which-ever we do, we can see that human nature is at present defective; and it could never have been created so by God, whose works are perfect. In a word, we find here one of those many proofs of an original fall, which not only deprived man of divine grace, but threw into his

* The wisdom of the Creator has provided against the danger of the vessels bursting from the overflow of the humours by the wonderful elasticity with which He has endowed them, especially the arteries, so that they expand and contract according to the greater or less abundance of the humours and the force of their movement. Besides this, they are strengthened and held firm by the parts adhering to them. "*Quanta hæc partium ambientium vis,*" says F. Nicholls, "*ad vasa conservanda, ex duobus experimentis abunde constat: quorum alterum ex lienis vasis penicillatis desumitur;*

quæ in recens natis per venam umbilicalem absque ruptura facillime replentur; cum eadem vasa, aperto abdomine, et immissa in venam portarum cerea materia, fere semper disrumpuntur; sublato scilicet, qui clausis abdominis parietibus debetur, renixu. Alterum experimentum in vasis pie matris cerea materia replendis constat: quæ, si in recens natis, quorum laxa crania facile cedunt, cera repleantur, ubique fere disrumpuntur; quod tamen in corporibus provectoris ætatis, quorum crania confirmantur, rarius accidit." (*De Anima Medica, Prælectio.*)

nature that disorder which everywhere manifests itself.* But let us return to our subject.

1937. If any little heterogeneous body enters the trachea, it immediately causes coughing. The purpose of nature is manifest; it tries to remove the small heterogeneous and hurtful body. But we must distinguish the purpose of nature, which is the work of Creative Intelligence, from the purpose of the *sensual instinct*, which sets the muscles in motion and so produces that violent, noisy, and frequent expiration which is called coughing. The wisdom of the Creator has certainly beforehand suited the action of the sensual instinct to the muscular movements which serve to eject the small bodies that enter the canal of the trachea and the lungs. But the *sensual instinct* has no such purpose. Such purpose, indeed, lies altogether beyond its action, which is directed solely to freeing it from the sensible discomfort, to get rid of the uncomfortable sensation, to settle itself, as we have said, at its ease. The ejection of the heterogeneous body follows as an effect of this, an effect which is determined solely and simply by the organism.

1938. Hence coughing takes place without the presence of any foreign body, or after the body is removed, or when it cannot be removed. Indeed, whenever there is any irritation in the trachea, whenever any corroding humour passes over it or over the lungs, or whenever the membrane of these is inflamed, the cough takes place equally, without the presence of any foreign body. When any of these cases occurs, the cough, so far from helping to expel the cause of the uncomfortable sensation, even increases it, by causing a greater rush of humours and blood to the irritated part, and sometimes increasing the inflammation

* The most distinguished theologians have always maintained that the effects of original sin are two: 1° the loss of divine grace, 2° the disorder which wounded and marred human nature. The celebrated John Aëstius, who was one of the warmest champions of the Church against the northern innovators, writes that Adam, after his sin, "JAM

IMMENSIS DEI BENEFICIIS PRIVATUS EST, VULNERATUS INSUPER IN NATURALIBUS ETIAM ANIMÆ VIRTUTIBUS." *Homil. adversus Lutherum et ceteros hæreticos de Septem Sacramentis*; Hom. I, where he describes the injury done to nature and the remedy applied to it by the mystic Samaritan, Jesus Christ.

till the vessels burst and consumption sets in. This might be called an error of nature; but the *sensual instinct* has merely obeyed its immutable law, whereby, in consequence of a stimulus, it tries to act in the manner most congenial to it.

In the same way, if the trachea is touched by a body that is again suddenly withdrawn, the coughing takes place, even although the body is no longer present. The instinct, therefore, which produces the cough does not properly tend to the extra-subjective effect of expelling the intrusive body: the expulsion of the body, if there be any body that can be expelled, is merely an effect that follows the action of the instinct.

Vomiting is caused by certain disgusting smells,* by certain tastes and even by the tickling of the uvula. We must therefore distinguish here also between the action of the sensual instinct and its result, which is the upsetting of the stomach. This effect is certainly preordained by the wisdom of the Creator, and tends chiefly to free the stomach from indigestible and hurtful things that burden it. It was this wisdom that placed the organs of smell and taste and the corresponding nerves and muscles in such reciprocal situations and connections, that, whenever the stomach is burdened, the sensual instinct acts, and the muscles of the abdomen and diaphragm coming into a state of contradistention, compel the obnoxious matter to ascend into the œsophagus, the pharynx and the mouth. But these nauseous smells and this tickling of the uvula overturn the stomach equally when it is empty; when it has no need to vomit, and vomiting injures it. In this case, again,

* Professor Valentin, in his excellent work on the functions of the nerves, teaches that the olfactory nerve has not two roots, the one motor and the other sensor, but only a sensor root. Nevertheless, smells can set the muscles in motion, producing vomiting, convulsions, &c. This is a fresh proof of the simplicity of the animal principle. Indeed it must be one and the same principle that receives the sensation from one organ and communicates movement

to another distinct from it in place. The same identical principle, therefore, is shown to be present with its activity in two places at least, in the place where it receives the sensation and in the place where it produces the movement. This shows that it is free from the laws of space, that difference of space is nothing to it, and that its subjective action outside of space is what produces the phenomena that are clothed with extra-subjective space.

it seems as if nature were in error; but the fact is that all these effects take place, so to speak, without the knowledge of the sensual instinct, which, being confined within the sphere of subjectivity or feeling, follows there its own laws; and those extra-subjective movements and phenomena are a consequence of its action, a consequence to which itself does not extend.

1939. Now let us consider in what exactly the pretended error of nature consists. If some humour irritates the lungs, the bronchial tubes or the trachea, so as to cause coughing, the error does not lie in supposing that a foreign body is present, but in acting as if this could be expelled by the violence of that expiration; because in every irritation, inflammation, or uncomfortable sensation there is always an intrusive body out of its place* and acting upon our feeling, always an extra-subjective force existing in the subject. But this foreign force which has entered into our feeling is not the whole of the external body, the whole of its activity, but only a portion of it. If this portion of force which has entered our subjective feeling is disagreeable to it, there follow pain and the effort to expel the same. Hence the effort of the sensual instinct really tends to expel the foreign force which has entered into the sphere of its feeling, but does not tend to expel the foreign body, which greatly exceeds that force.

In this sense it may be said that the *sensual instinct* reacts against an extra-subjective force. Nevertheless, the movements which it produces, and which are the means provided by nature to enable it to get rid of its enemy, are not within its sphere, and therefore cannot be measured by it; the result of which is that it cannot forecast the benefit or mischief which they may cause to the organism.

1940. If now we pass from the large, muscular movements caused by the sensual instinct to the small, tonic movements, especially those of the vessels, we shall under-

* When we stimulate the uvula with a finger or a feather and vomiting follows, although the stimulus has ceased to tickle, this is due to the fact that the

molecules of the part touched remain for a short time in a state of displacement, long enough to cause vomiting.

stand how it is that this instinct calls them forth, sometimes with benefit, sometimes with the opposite. That nature tends to free itself from evils by seasonable movements has been observed in all time, and even Hippocrates wrote that "Nature is the curer of diseases ;"* and Galen, with perhaps too general a phrase, adds that "Nature does everything for the health of man,"† and, again, that "Nature, employing its forces, expels hurtful things and preserves beneficial ones for its own use."‡ This dominion exercised by the animal principle in behalf of animality was called by Stahl the *Autocracy of Nature*, a subject upon which he wrote a dissertation, which may still be read and meditated upon with the greatest advantage.

1941. But in order to reduce this sublime view to its proper limits, we must not forget those evils which the action of the sensual principle, though in itself always tending to good and obeying its own laws, indirectly brings along with it.

The points to be observed in connection with this fact are innumerable and go beyond our knowledge. Even the most celebrated physicians seem still a long way from having carried their researches, otherwise most praiseworthy, up to the immensity of nature. Narrowing down our subject, therefore, we will set out from a point of fact which is certain, a point upon which we have already touched, viz., that when a disagreeable irritation occurs in one part of the body, the sensual instinct sets itself in motion, girds itself, so to speak, and struggles against it.

1942. Irritation, according to us, is always accompanied with feelings more or less keen, more or less distinct, although it is not equally easy to arrive at consciousness of them all, some being slight or indistinct, others so excessive as to destroy the attention of the mind. Such feelings are local, and we shall afterwards see the reason for this. Here it will be sufficient to remark that this localization, according to the intention of the Creator, was necessary to direct the instinctive power of the animal

* *Epidem.* VI.

† *De Nat. Facult.* Bk. I.

‡ *Ibid.*

tending to remove the irritation. If it sometimes happens that the irritation of one part develops a more intense pain in another, and the sensual instinct, deluded as it were, directs the greater force toward the part afflicted with pain, it again remains to be seen whether in this case the sensual instinct makes a real mistake, or whether its action, though directed to the region of the sympathetic pain, instead of terminating there, is not reflected to the true seat of the original irritation. This is a question that must be decided by observant physicians.

1943. Meanwhile let us make all we can of the undeniable fact that the sensual instinct, generally speaking, directs its force, once roused, to the irritated spot, eager to drive away the irritating stimulus.

But what form does the expulsive action assume?

That form depends altogether on the organization, that is, on the organs which the instinct must set in motion in order to free itself from the uncomfortable irritation. In fact, if it had no organs, there would be no subjects of movement; but since it has organs, the movement must plainly receive its quality and form from these. If the organ be continuous, the motion will be continuous; if it be contiguous, it will participate in a kind of shock. A motion communicated to a round body is different from that communicated to a long one. But this is not all. It is the mixture of the organ, and its vital mobility, that chiefly modify the internal movements expressed in it. Finally, the mechanical, physical and chemical forces, in so far as they carry on any action independent of the feeling of the animal, may offer resistance to the full effect of the instinct.

There will, therefore, be a difference in the movements of the nerves according as their bundles are more or less voluminous, their fibres more or less fine, according as they are provided with ganglia or not, bound into plexus or disunited, and also according as they communicate with a larger or smaller number of muscles, with muscles of large dimensions or with very minute muscular fibres, &c.

For example, if the irritation is in the intestines, the action of the sensual instinct results in their peristaltic movement, tending to free them from irritating excrement, and for this purpose it calls to its aid even the diaphragm, a large, strong muscle, whose movements are necessary to overcome the resistance of the sphincter muscle. If, on the other hand, the irritation is that produced by cold on the skin, the sensual instinct at once calls forth movements tending to expel the stimulus. But the skin and the subcutaneous membranes have no large muscles to set in motion, and therefore, the movements produced by its action are many and minute, and have their seat chiefly in the minute vessels which run through the skin and adjacent parts in all directions like the meshes of a very fine net. Plainly the sensual instinct in this case exerts its motor power through the ganglionic system on which the cutaneous organ depends.

1944. In all these actions, the sensual instinct has no other proximate aim than to free itself from irritation so far as this occurs in feeling; but these efforts are followed by another effect, bound up with them by Creative Wisdom, an effect outside of feeling and instinct, an effect to which the instinct does not tend, because it does not feel it, and this is movement considered in its extra-subjective conditions, a movement which in the Creative Mind has the beneficent purpose of expelling foreign bodies that injure the organization. Now this beneficent effect is not always attained, for various causes independent of the laws of the sensual instinct, which nevertheless are faithfully observed. And this is what is called an error of medical nature.

That the intention, then, of Creative Wisdom in connecting these subjective movements with the activity of the sensual instinct is beneficent, that is, to give the animal body a means of ejecting hurtful agents, is further clear from this, that not only do the large muscular movements which produce coughing, vomiting, &c., tend to remove the cause of irritation, but the small movements also tend to the same end by promoting excretions. In this way we

may also admire the wisdom of nature, which has constructed the vessels of a substance at once strong and in the highest degree elastic. For it is to this wonderful elasticity that the more or less accelerated direction of the humours is in the main due; for in accordance with hydrodynamic laws, the course of a fluid must become rapid where its channel is narrow, and slow where its channel is wide, in order that the same amount of fluid may pass through every section in the same time. By the same laws it plainly follows that when a vessel can be variously contracted and enlarged in its different parts, the direction of the fluid may at the same time be determined. Now it is clear that the sensual instinct exercises this power over the vessels, as we see from the flux of blood to a wounded part, and from the effect of the passions which accelerate or retard the course of the blood, restrict it toward the heart, or enlarge it till the blood swells the capillary vessels of the surface. And it is just this power of the sensual instinct that renders it the cause of all the excretions as well as of all the secretions, both when the body is in a state of health and when it is in a state of disease.

1945. The importance of this reflection becomes very great when we consider that all maladies which admit of being cured, are cured by opportune excretions. Such, at least, is my belief. I do not mean to say, of course, that the excretions are the first cause of cure; I am quite willing to admit that this cause lies in the solids, and that the irritation of these may be the first cause of the trouble; nevertheless, it seems to me that the whole truth is not expressed in what certain persons affirm at the present day, viz., that the proper excretions are merely the effect of the cure. Indeed, it is certain that until such wholesome excretions are accomplished, the sound state of health is not restored; the cure has not yet taken place, and therefore the effects cannot exist, unless we choose to maintain that effects precede their causes. Even those most keen-sighted men, the authors of modern medical science, who think they have discovered the first cause of diseases in the

solids, have never denied that when the solids, being irritated, receive analagous movements (which, according to us, depend on the sensual instinct), the humours change their course, modify their composition, become themselves irritants, and are very often the causes of inflammatory diathesis.

"The most rigid solidist," says Tommasini, "cannot conceal the fact that the complex of the organic and normal conditions of the living machine results both from solids and liquids compounded in a certain manner and endowed with determinate qualities. The pathologist most averse to humorism cannot deny, on the one hand, that the blood receives the qualities which characterize it, and is maintained in its proper composition and condition by the action and influence of the sanguiferous vessels; and, on the other, that the liquid is the immediate and indispensable stimulus of the heart and vessels, and that this stimulating action which it exerts must be relative to the qualities which belong to it."*

1946. In fact, when modern physicians, who have reduced the greater number of diseases to inflammation, so frequently have recourse to blood-letting, what else are they doing but making use of an artificial excretion as a means of cure?† Of course they do not in this way directly apply a remedy to the solid; they merely diminish the humour which they suppose to be irritating, and to be, it not the first, at least the principal cause of the diathesis, if not of the original excitation.

1947. It may, therefore, be said in general that the sensual instinct, when excited by a local irritation, produces an extra-subjective vascular movement, whose beneficial effect consists in removing, by means of *excretions*, the cause of this irritation, and therefore, generally, that maladies are cured by means of excretions.

1948. It is singular to see how, when a system has

* *Dell' Infiammazione e della febbre continua*, &c., chap. xix.

† The same principle produced Le Roy's purgative medicine. In all cases

the purpose was to expel irritating humours from the human body, in spite of the prevailing *solidism*.

gained prevalence through the labours of great men, suddenly a whole host of smaller men, from a vain fear of appearing behind the times, push it on to exaggeration, banishing even the most innocent terms used by the earlier masters. Thus, at the present day, many persons reject with ridiculous contempt the terms *emunctory* and *strainer* as referred to the human body, as if they had become altogether unfit to be pronounced on account of the abominable stain contracted by them in the mouths of the *humourists*, who did not perhaps invent them, but did frequently employ them. In spite of this, however, and even in the presence of these contemptuous and fastidious writers, nature continues to have her emunctories and her strainers, and will never cease to have them so long as the human body has skin, kidneys, intestines, nostrils, lungs, and, in a word, all those excretory organs that correspond to the secretory ones; both of which classes of organs are so numerous that there is no part of the human body that is not provided with them. With these emunctories and strainers, which we do not blush in the least to call so, it preserves its good condition. Indeed, since the animal is "an excited fundamental feeling," and since this feeling, when excited, produces, by means of continual excitation, innumerable movements, displacements and pushings of parts in the organized machine, it must needs happen that many of these parts, when reduced to a more or less perfectly liquid state, separate from it, cease to live of its life, acquire a foreign and irritative condition, and therefore must be expelled in order not to hurt it. But if the body were to go on continually losing parts without acquiring new ones, it would soon be reduced to nothing, and, first of all, to a state of unfitness for animal life. Hence comes the necessity of making up for its losses, which it does by means of the molecules that it obtains from the atmospheric fluid, and those which it obtains from food. These molecules it afterwards works up, puts together, segregates, assimilates and organizes according to its needs.

1949. Now, as long as the body is in health and the *vital instinct* has not received any of those irritations that are calculated to weaken and overcome it, so long does the sensual instinct generate in the machine the normal movements, in which the secretions and excretions take place in a normal way.

1950. But the case is otherwise when, the irritation being hurtful, *diseased processes* begin. The difficulty, however, lies in discerning when and why the irritation is so hurtful as to determine the *sensual instinct* to occasion that series of movements which is called a *diseased process*. Now, since the *irritation* of the sensual instinct, according to us, is, at bottom, only a *painful feeling*, and feeling is the work of the *vital instinct*, we must carry forward our investigation into the laws which this instinct follows in its general and constant action.

ARTICLE II.

How the Vital Instinct produces a Painful Feeling, exciting the Sensual Instinct to perform an action which disturbs the Normal State of the Animal Machine and starts Diseased Processes.

1951. The vital instinct animates the body; to animate the body, and to render it felt, are to us one and the same thing.

But the feeling produced by the vital instinct may be perfect or imperfect.

It is perfect when the vital instinct has not to maintain a *laborious struggle* against foreign forces.

It is imperfect when it has to maintain such struggle.

1952. I say a *laborious struggle*, because we must distinguish two kinds of struggle, the one requiring no disagreeable labour, so that it can hardly be called a struggle, the other requiring disagreeable or painful labour.

When the machine is properly organized, the principle, which animates it, far from feeling any difficulty in that act, enjoys it; because no being finds it difficult to be. Hence, if we wish to apply the term *struggle* to what takes

place in the production of life, we must explain its meaning, which is simply this, the dominion which the vital principle exercises over the substance which it makes its own by rendering it the term of its feeling: this substance (which is corporeal) falls under that dominion and is modified: the soul enjoys its domination, and this enjoyment is the pleasure of life. We must observe, however, that such perfection of life implies, besides a perfect bodily organization, the necessity of opportune external stimuli, air, light, &c., and that a body in a state of perfect organization and such as to place no impediment in the way of life, and the harmonious action of all external stimuli that are suitable to it, is perhaps never to be found in the present state of the human race, although it may be conceived.

1953. Moreover, if besides conceiving this perfect state of body at a given instant, we wish to conceive it as lasting, we must then suppose, 1° that no foreign power interferes with the perfect organization; 2° that the body is continually supplied with those stimuli which are suitable to the perfect course of the animal functions.

Without continuity of parts, the unity of the felt does not exist, and this unity is given from without. Again, without continued internal movement life is not manifested by extra-subjective phenomena, and this continual motion is likewise conditioned by an organization given by a foreign cause. Again, without the harmony of these movements, dominated from a centre of feeling, the animal cannot individuate itself, and this centrality of feeling, and therefore of movement, depends in great part upon the organization. But supposing these external conditions given, the extra-subjective movements depend likewise on the subjective activity. What then is the law of this activity and the cause of its action?

Feeling tends to *extend*, *excite*, and *individualize* itself. Of course, if it did not exist with all its conditions, it could neither posit, nor excite, nor individualize itself. But it is given and posited in nature by the Creator.

Given, then, an extended, excited and individualized feeling, its activity displays itself incessantly in preserving and increasing these its three prerogatives; in preserving the felt in all its extension and in enlarging it; in preserving excitation and augmenting it in proportion to the stimulus; also, in preserving the harmony and unity of the feeling in proportion to the harmony and unity of the stimuli.

1954. Let us see what part is played in this by the vital instinct, and what by the sensual instinct.

The vital instinct produces the fundamental feeling when it finds the body properly organized, and renders its parts felt. These parts must be molecules organized so as to be capable of receiving the life proper to the animal. If a foreign force tends to withdraw or to break up the felt parts, the vital instinct applies force to them in order to retain them; and if other molecules properly organized approach and form continuations of the felt ones, it exerts force in order to invade them, and to draw them within its feeling; and these and similar operations are acts and movements of the *organizing function*. But if the vital instinct, after having been stimulated to these functions by contact with matter, is opposed in them and prevented from completing them, it is troubled and suffers pain, because opposition and conflict in it, opposition to the natural propensity of feeling, is trouble and pain.

1955. Here, however, we must distinguish from *pain* the *cessation* of the (individual) *feeling*. When some parts of the animate continuous are withdrawn from the action of the vital instinct, through being divided and disorganized, the feeling of which they were previously the term, and, hence, all pain, ceases in them. Thus in the parts that come away from the animal body by means of the excretory organs, as well as in gangrene, all painful feeling ceases. Pain, therefore, is the conflict between the vital instinct and the foreign matter or force; but when matter has withdrawn itself from the power of the vital instinct and obtained a complete victory over it, then there is no

more conflict or pain. On the other hand, when the vital instinct finds matter so disposed as to offer no resistance to its operation, or when it obtains a complete victory over it, rendering it a full term of its action, then feeling, whose nature is pleasure, comes into being.

1956. But when feeling (which is essentially pleasure) is produced, movements may take place in the matter which constitutes its term, and this in two ways.

Some movements neither cause discontinuity in the living matter, nor exert any force to do so, or to withdraw it from the action of the vital principle; hence, far from destroying feeling, they excite and increase it; and, feeling being essentially pleasure, they increase pleasure. Such are all the sensations that arise in the animal body according to nature.

Other movements apply violence to matter, impelling it to become discontinuous and to disorganize itself, and then, until it is finally rendered discontinuous and becomes disorganized, the struggle which we call pain goes on.*

1957. Now, given the feeling of pleasure, and given that of pain, the sensual instinct at once puts itself in action, in order to aid the first and withdraw from the second. This action on the part of the sensual instinct carries with it other movements of the animate matter, which again are beneficial or hurtful to the constitution of the animal, agreeing or disagreeing with its fundamental excitation. In these movements which follow from the action of the sensual instinct we must distinguish:

1° The *quantity of impulse* which the sensual instinct receives, and therefore the quantity of its radical action. This does not exceed the degree determined by the quantity of the sension or of the pain which occasions it. Sension or pain may be,

(a) More or less manifold—that is, there may be various contemporaneous sensations and pains in different parts of

* If the movements impressed upon living matter do not tend to render it discontinuous or to disorganize it, but only to give it a movement of excitation

opposed to natural excitation, then there arise discomfort, disharmonies, disagreeable sensations, &c.

the body, giving rise to various contemporaneous actions on the part of the sensual instinct ;

(b) More or less extensive.—Hence the sensual instinct may begin to act and to produce movements in a larger or smaller part of the human body ;

(c) More or less intense.—Hence the radical action of the sensual instinct may be more or less violent and precipitate.

2° *The amount of continuation in the action of the sensual instinct.*—The sensual instinct, after having received an impulse from the pleasant or painful sensation, acts only in so far as it finds its action pleasant, or less unpleasant than not acting. Hence, whenever action is more unpleasant to it than the contrary, it either ceases from all action or diminishes its action until it finds it less unpleasant than inaction. This partly explains the activity of the animal nature in certain diseased conditions.

3° *The advantage or disadvantage to animality* which follows the action of the sensual instinct.—If the action of the sensual instinct occasions movements in the organism, these movements produce modifications in the animal both as regards the vital instinct and the sensual instinct itself.

As regards the vital instinct, the movements caused by the sensual instinct in the living organism or compound may be,

1° Such as aid the vital instinct in performing its function, by strengthening the continuity and proper organization of the molecules ;

2° Such as give to the molecules a contrary impulse, and hence produce or increase the conflict between the vital instinct and brute matter, and so generate or increase pain ;

3° Such as directly withdraw brute matter from the action of the vital principle, render it discontinuous, disorganize it, and so cause death.

1958. As regards the sensual instinct, these movements, by rousing pleasant or painful sensations, generate new stimuli and impulses to the activity of the sensual

principle itself, which thus multiplies its actions and reproduces them.

1959. Given, therefore, a first sension or a first pain, there must follow in the animal body a series, more or less long, of movements alternating with the pleasant and painful feelings. And this series of alternation of subjective feelings and extra-subjective movements may be either beneficial or prejudicial to the state of the animal.

1960. An example of a series beneficial to the state of the animal is seen in the development of the animal from the germ and its successive growing until it reaches perfect maturity. This development and growth is a perpetual alternation,

1° Of sensations caused by stimuli external to the animal, naturally exciting the vital instinct ;

2° Of instinctive movements produced by the sensual instinct receiving impulse from said sensations ;

3° Of new sensations which the vital instinct, excited by said movements, produces ;

4° Of new movements produced by the sensual instinct incited by these second sensations.

This circle of *movements* and *sensions*, and sensations and movements, is perpetuated throughout the whole animal life. In this life the action of the vital instinct and that of the sensual instinct alternate without ceasing. The vital instinct, by producing sension, gives the impulse to the sensual instinct ; and the sensual instinct, by generating motion, offers material to the action of the vital instinct. At the head of this continual alternation are those external stimuli which had produced the first movements, and furnished material to the first sensations of the vital instinct. But the external stimuli pre-suppose that the animal is already formed, at least in its first rudiment ; they pre-suppose the vital instinct already in act in the first felt, in the first feeling whose activity it is.

1961. Another example of a beneficial series occurs in the *diseased processes* themselves, when they restore the diseased animal to a state of health. Every diseased

process has its origin in an external stimulus, which by modifying the vital instinct and bringing it into conflict with brute matter which tends to withdraw from its influence, causes the painful and troublesome state. These disagreeable feelings, by bringing the sensual instinct into play, make it produce other movements, which again furnish matter to the vital instinct, which then produces the second sensations; and these, again, impelling the sensual instinct, provoke it to cause new movements, and thus there is the perpetual circle, more or less long, of sensations and movements, which is called the *diseased process*.

1962. An example of the series and alternation of *movements* and *sensations* prejudicial to the animal may be seen in its insensible advance toward old age, ending in its destruction. The same law of vicissitude which developed the animal from its first germ up to full maturity, gradually leads it back from this maturity to dissolution.

We likewise find a prejudicial circle of movements and sensations in those diseased processes which prove fatal to life.

CHAPTER XII.

ON THE UNIVERSAL CAUSE OF DISEASES.

ARTICLE I.

The External Series of Subjective and Extra-subjective Phenomena which succeed each other without interruption in the Animal has always been looked at by the Authors of Medical Systems from a partial point of view.

1963. Let us now cast a glance at the Hippocratic art, from the professors of which we have been learning so much. The Systems of medicine that have thus far appeared have, perhaps, all contained some luminous idea: their shortcomings have consisted in forgetting a part of the truth.

Some physicians there have been who appear to have directed their attention exclusively to that class of *diseased processes*, whereby nature restores the animal to a state of health. These have extolled and magnified the autocracy (*αὐτοκρατία*) of nature. The thought was luminous. That certain diseased phenomena tend to the restoration of health; that certain hemorrhages, diarrhœas, and fevers are so many efforts on the part of sick nature seeking to return to health by those very steps which seem to lead to death, but, in truth, lead to health, is an undeniable fact: and this is the fact which the celebrated school of Montpellier proclaimed to its great honour. These are the ideas of Van Helmont and Stahl, ideas which Pinnel calls *sound and fruitful*.*

1964. But we must not forget the other fact that there is also a series of movements and sensations that revolve in

* *Nosographie Philosophique*, &c., Second Edit. *Introduct.* xxxii.
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a circle and result in the deterioration and finally the destruction of the animal, that there are diseased processes which, leading the animal from state to state, end by causing its death. Those physicians who have been greatly struck by this second fact have not directed the same amount of attention to the first, and while the others wished everything left to nature, these wished to have everything accomplished by art. In Stahl's system, nature's tendency to the state of health is explained; but the errors of nature are left without any satisfactory explanation. In the system of his adversaries, the errors of nature are recognised, if not explained, but its repairing and healing tendency is left out of view, and therefore without explanation. We say there is a natural law which furnishes the ground of the processes in the animal nature that lead to health, no less than of those that lead to death. The vital and sensual instincts alternating in their action and incessantly modifying each other, are the cause of both. They would always naturally advance in the direction of good if they were not dependent upon foreign and material stimuli. It is these stimuli that alter, disturb and throw into confusion their natural harmony.

ARTICLE II.

The Causes of Diseases are all reducible to One.

1965. Hence the causes of all diseases may be reduced to one, namely, to IRRITATION, this word being used in a very extensive sense.

1966. By irritation, in this connection, I mean the effect of a foreign force, which, acting upon the animal feeling and instinct, alters its normal condition, and thus occasions in its two modes of operating—the *vital* and the *sensual*—an alternate action, in itself diseased, and finally leading it to health if it can free itself from the irritation, and, if not, to death.

1967. The first effect of the foreign stimulus and of the

irritation which it produces appears in the vital instinct, which, on being opposed, instead of producing the normal feeling to which it tends and which in itself is pleasant, produces an *abnormal* feeling, painful or uncomfortable.

1968. The second effect appears in the sensual instinct, which, being roused by the *abnormal feeling*, increases and varies the quantity of motion existing in the body; consequently, through these increased and varied movements, which are likewise abnormal, matter is supplied for new abnormal sensations which produce new movements.

1969. When, therefore, this series of alternate actions has once begun, it may take either of two courses.

1° It may cease with the cessation of the stimulus. This happens whenever the stimulus does not alter the matter of the vital instinct, but merely gives it a greater activity and excitation, or whenever it alters it only in such a way that the sensations which it produces merely induce the sensual instinct to cause those movements whose effect is to restore things to their normal conditions, by giving back to the vital instinct that material which is congenial to it, and which had received some alteration from the stimulus.

1970. 2° It may go on even after the stimulus has ceased; and this unquestionably takes place when the movements of the sensual instinct, which follow the painful sensations of the vital instinct, instead of restoring and recomposing the material of this instinct, merely alter it further, by exciting new stimuli. It must be remembered that even the parts and molecules of the living body, when displaced or moved with a certain impetus, become new stimuli, stimuli really foreign, because material and standing in opposition to the vital instinct. In this case the series of alterations and alternations within the animal is continued independently of the original stimulus; because the modifications of the vital instinct and the sensual instinct at every one of their acts reproduce a fresh host of irritating stimuli, and superinduce that morbid condition which has been by the moderns called *diathesis*.

ARTICLE III.

Health and Disease do not depend upon the Quantity of Stimuli, but upon their Opportuneness or the opposite.

1971. These two characteristics of the alternating series of sensations and movements—of the former of which one of the chief marks is brevity of duration, of the latter a longer duration—have been very well observed by recent physicians, but almost exclusively with reference to the fact of inflammation, and I beg the reader's leave to place before him the description of this given by the illustrious Tommasini, which will afford me an opportunity of adding some observations which may not be useless.

"As long as an *excess of stimulus*," writes this distinguished professor to whom medicine in Italy is under such deep obligations, "does not produce inflammation, the effects which it produces in the dynamic state of the fibres affected by it, are, as we have seen, proportioned to the degree of the stimulus itself. We have seen that the diseased excitation and the increased movement which is the result of it, are so completely in a ratio with the stimulus applied, that they diminish when it diminishes, and as soon as it ceases or is corrected by contrary agents, vanish without delay. Thus over-heatedness, dryness of the skin, feverish movements of the heart and arteries, the sudden absorption of the lymphatics, and the thirst, the redness of the face, the swelling of the veins of the brain and head, which are produced by the too great action of the sun or by running, are easily dispelled by repose, or by the withdrawal of the heat, or by the use of anti-phlogistic and counter-stimulating drinks. Thus the intoxication which comes from the abuse of wine and spirituous liquors ceases when the action of these temporary stimuli ceases or is dispelled, and is corrected by the prompt administration of iced drinks, of tartar emetic, or cherry laurel. So far, the outrages upon sobriety, and privations—calculated always with relation to the individual susceptibility and

the habits of the subject—are found to be exactly corresponded to by the excess, moderation or defect of excitement or vital motion; and so far the universal laws of the mean and the just would include the whole code and therapeutic apparatus of medicine.”*

This is the series of short duration. Now the professor passes on to describe what we call the long series of alternate sensations and movements:

“But as soon as an inflammation, whether severe or light, acute or chronic, is excited, all proportion between the abuse and the diseased excitation disappears; all dependence between effect and cause ceases, and correction or amendment no longer avails to remove the mischiefs which have followed an excess of wine, heat or exercise; the contrary action of anti-phlogistic and counter-stimulating remedies no longer avails to remove the excessive movement that has been roused in the inflamed part and those which are continuous or allied with it. Of what use is it for a drunkard who has inflicted upon himself a slow or acute gastritis or hepatitis, to correct his abuses by drinking, if it were possible, as much water in a day as he has swallowed liquors in a month? This does not extinguish the dangerous conflagration lighted by the excessive stimuli, nor put an end to the gastro-hepatic phlogosis (although restraints may be put on its progresses by proper treatment), nor prevent it from lasting for a given time and going through a certain series of stages. If a flash of lightning, a sunstroke, or the shock of rapid running causes pneumonia, ophthalmitis or *angina pectoris*, it is not enough for the patient to take repose, to lie down amid cool surroundings, to avoid the light, to make large use of saline or nitrogenous drinks, or to subject himself to repeated and timely blood-lettings. These remedies will not at once arrest the inflammation of the lungs, throat and eyes: on the contrary, the inflammation will go on increasing to such a degree that it will be lucky if art is able to confine it within the limits that exclude dangerous disorganiza-

* *Dell' Infiammazione*, &c., chap. ii.

tions, and it will go through a course quite independent of its causes, which have ceased."*

1972. On these passages, in which the illustrious Tommasini has described unquestionable facts, I will make bold to say that I consider as in the highest degree inaccurate the expression *excess of stimulus*. It recalls to my mind the narrowness of the Brownian system, from which medicine must completely free itself before it can properly enter the royal road of its progresses. Instead of *excess of stimulus*, we ought, I think, to say *inopportuneness of stimulus*, since the maladies that follow the stimulus, even by the admission of Tommasini himself, are not proportioned to the quantity or intensity of the stimulus. Hence, the true cause of diseases is not the excess, but the inopportuneness of the stimulus. However small a stimulus may be, if it is inopportune under the then existing condition of the animality, in other words, if it irritates and disorders the functions of the vital and sensual instincts, it is *ipso facto* excessive, because all that is evil is also more than is needed. The determination of the inopportuneness of the stimulus must offer an ample field for medical wisdom, since it depends upon innumerable causes, the atmosphere, the temperament, the particular state of the animal, and, in it, that alternating series of sensations and movements which never ceases, &c. This observation did not altogether escape the sagacity of our illustrious physician, but being wedded to the system which made all maladies depend upon excess or insufficiency of stimulus, he was perhaps not able to draw all the advantage he might have done from his own observations. In fact, he admits that the necessary course of inflammation "is not a phenomenon depending on the degree or gravity of the malady. What proportion," he says, "can be admitted between a bad case of drunkenness, in which not only the whole system of the vessels and circulation is raised to a state of diseased excitation, but strong delirium sets in and threatens paralysis, fainting, vomiting and the subversion of every natural

* *Dell' Infiammazione*, &c., chap. ii.

function? or what proportion is there between a case of violent ephemera, produced by the sudden action of *im-moderate stimuli*, and sometimes so severe as to cause fear of congestion of the brain, and a superficial erysipelas extending over small portions of the skin? And yet, if inflammation does not set in, and no ruptures of vessels and dangerous effusions of blood take place, all these alarming phenomena of drunkenness and ephemera will disappear as soon as the stimuli are withdrawn; whereas that very slight inflammation of the eyelids, or that very limited erysipelas will take its course and noiselessly go through all its stages, whatever action of relieving or counter-stimulating remedies may be applied. And I defy any one, who may not be persuaded of this *necessary* or *inevitable course* of inflammation, to arrest at once, by the use of any anti-phlogistic or other means he chooses, even the slightest inflammation (provided it be inflammation) in any part of the body. Is it not proved by this simple fact, that inflammation, whether extensive or restricted, severe or slight, has in it something peculiar which makes the malady to begin where the external causes that produced it have ceased to act, in contradistinction to so many other diseased states which terminate or go on solely for the reason that the external causes have either ceased or still continue to act? Is it not proved that inflammation of itself creates an *independent* pathological condition, the extent, force, duration and influences of which cannot be calculated by the force and duration of the external causes, which no longer operate? This fact, that a diseased affection is *independent* of the external causes which produce it, is the principal, indeed I think the exclusive, characteristic of diathesis."*

1973. These most just observations go to confirm what we have been saying, namely, that it is not the excess of stimulus that causes the necessary course of inflammation, since even under the influence of a greater stimulus it does not take place. The cause, therefore, is the *inopportune*

* *Dell' Infiammazione*, &c., chap. ii.

of the stimulus. But when is a stimulus inopportune? This is the great problem. The question here at issue is no longer simply to measure the quantity of the stimulus, but to take account of all those innumerable circumstances, whose mixture, so to speak, renders it either opportune or inopportune. This brings us back to the ancient method, to Hippocratic good sense.

1974. And first of all, it is an unquestioned fact that the state of health is conditioned by the continual action of stimuli, such as air, light, food, those that are aroused by exercise, and those that are reproduced by the continual internal motions which perpetuate themselves in the living compound. These are certainly opportune stimuli.

1975. And such stimuli may also be increased or diminished up to a certain point without going beyond the limits of opportuneness. A healthy man may abstain from wine, may drink it in small quantities, or may take it in more generous doses without any injury to his health. He may, within certain limits, eat much or little; he may exercise his physical, intellectual, or moral forces much or little, and his health receives no detriment. The course of the animal functions changes, indeed, but it is not injured. The alternation of the internal sensations and movements may therefore be rendered more or less rapid, more or less vigorous, without causing any diseased affection. And it was necessary that Creative Wisdom should grant to animality this power of adapting itself to a great variety of natural stimuli and to a variable measure of them, since without this it could never have been preserved. The slightest change in the atmosphere, every variety in food, every increase or diminution of exercise, would have initiated a series of diseased phenomena. But how far does this sphere of opportune stimuli extend? Where is the principle determining the character of inopportune stimuli to be found?

ARTICLE IV.

Continuation on the Opportuneness and Inopportuneness of Stimuli.

1976. The sphere of opportune stimuli is undoubtedly more or less extensive according to the health and robustness of the body, and that special condition of it which in great measure is due to habit. Hence, we find that the human body resists the effects of different climates, and adapts itself to different temperatures. We also find that in the same climate individuals vary greatly in adaptability and power of enduring stimuli, and that whilst some seem not to be affected in the least by atmospheric changes, severity of fatigue, or varieties of food, others are liable to diseased affections from every, even the slightest cause.

1977. We must, therefore, look for the character of irritation or diseased alteration in the condition of the animal body itself in the alternation of the internal sensations and movements whose laws we have described above. In these laws alone lies the reason, why in some cases that alternation in its normal state is not disturbed when excited by certain external stimuli, while in other cases the action of the very same stimuli irritates and alters it; as also the reason why, on occasion of an irritation, there follows either a diseased series of sensations and movements so short that it terminates very soon after the removal of the stimuli, or so long that it continues for a considerable time even after the removal of the stimuli, goes through several stages, presents various scenes of phenomena, and terminates either with the restitution of health or with death. Indeed, it should be well noted that this series, when once begun, does not cease at the very instant when the stimuli that started it are withdrawn, and that the difference between the two series does not lie in the difference between no time and a long time, but in the difference between a short time and a long time.

1978. Since, then, the diseased series depends not upon

excess of stimulus, but upon a *stimulus inopportune* to the condition of the internal alternation of sensations and movements, we can, it seems to me, see the true reason why physicians wedded to the system of excess and defect of stimuli are never able to determine at what grade or amount the excess or defect begins, and if they try to do so, at once meet with refractory facts that rebel against their system. Hence Tommasini confesses his inability to determine the limit at which excitation begins to be inflammatory. "The line of demarcation," he says, "the true limits between an excess of excitation not yet inflammatory—in other words, not inducing anything more than an increased movement and swelling of vessels, without any alteration of fibres—and that excess in which the fibres themselves and the membranes depart as wholes, and in their constitution, from their natural state, could not easily be determined; nor would it be easy to fix what degree of stimulus is merely sufficient to cause a morbid increase in the oscillation of the vessels, and what is fit to induce in the fibres and texture of the parts a change of organic conditions."*

1979. Now, the impossibility which this celebrated man finds in determining these limits, leads him to assert that the greater or less degree of stimulus and excitation must be considered as relative to the individual *power of endurance*. But the intoxication which has resulted in delirium and threatened paralysis is a phenomenon which clearly shows that the individual power of endurance has been overcome by the stimulus, and yet the course of that malady ceases shortly after the wine has been vomited or digested, whereas the slightest inflammation goes on through that long course which Tommasini correctly calls necessary. It follows, therefore, that a stimulus may be excessive even with relation to the individual power of endurance, and yet not produce inflammation, whereas a smaller stimulus applied to the same individual may produce it. At this point the illustrious physician, driven by

* *Dell' Infiammazione*, &c., chap. i.

the evidence of facts, grazes the truth; for he adds: "The difference in the effect may perhaps depend not only upon the *degree*, but also upon the *quality of the stimuli applied*. These may be endowed with merely stimulating activity, and thus only cause an increase of movements, or they may have some chemical or other more penetrating influence, and may bring the stimulated fibres into a process extending to their texture and inducing a change of mode, form and extension in them. Thus we find that it does not always depend upon *the greater or less known grade of stimuli* whether the excess of excitement shall remain within the original limits, or whether it shall pass to a deeper state. Thus, in certain atmospheric conditions, in which the air is perhaps a conductor of unknown elements, energetically expressed by the *quid divinum* (θεῖόν τι) of Hippocrates, we see that all infirm persons are attacked with inflammation, more or less severe, in some part, notwithstanding that the degree of heat is moderate, and the excitation of their systems in general does not seem much increased. On the other hand, we sometimes see that under the most burning heat and with a *degree of manifest stimulus much greater than in the other case*, although the excitation and the circulation increase in nearly all the parts of the body, none, or, at least very few, are afflicted with inflammation. But the most important difference in these effects must depend above all upon the particular constitution of individuals and on a certain (if I may use the expression) greater or less alterability of organic and modal conditions, no matter whether this is or is not partly determined by the mixture or the condition of the liquids, which certainly go to form part of the *ensemble* of the organic constitution. Here we must look for the reason why, in some persons more readily than in others, the excess of stimulus and excitation passes over into a real phlogistic and inflammatory condition of certain parts, transcending the limits of simple increased movement. Thus we find that the same contusions, the same wounds, the same thorn, produce in some persons (apart from the first immediate and mechanical disunion of the

parts) merely a transient increase of stimulus, whereas in others they cause, even with a smaller degree of force, a profound phlogistic alteration, which rapidly extends and is not easily cured."*

1980. We must not, therefore, resort to *excess or defect of stimulus* in order to explain the course of inflammation and every other diseased process, but to the laws of the alternate action of the vital and sensual instincts, of the organic *sensations* and *movements* which constitute (to use Tommasini's expression) an alternation with a fixed and necessary course, an alternation which takes place according to the same identical laws, both in the state of health and in that of disease. For this reason *pathology* becomes a continuation of *physiology*, since it is plain that the laws which govern the actions of the living machine in its diseased state are the same as those that govern its actions in the healthy state, and that the phenomena vary only because the states of the two instincts which produce them, their reciprocal relations and the corresponding quality of the external stimuli that set them in motion, vary. Tommasini recognises that the generation, development and reproduction of the parts are internal operations of the animal, which, when once they have received the proper impulse from foreign agents, proceed independently of these agents, and, according to us, in virtue of the animal spontaneity which manifests itself in the two instincts in question, instincts which act as levers to each other. He recalls the observations of Harvey upon the pregnant uterus, and on hundreds of ova; from which observation it appears that the steps which these bodies living in a living being take from the first moments of conception up to their highest development are similar to those of inflammation. He adduces the opinion of Onofrio Scassi, that the membrane of the uterus, which Hunter called *deciduous*, is merely the product of a kind of natural inflammation. He reminds us that inflammation is capable of reproductive activity; that the cavities left by sores and cuts are filled by inflammation;

* *Dell' Infiammazione*, &c., chap. ii.

that new fibres are generated, whole pieces of flesh reproduced; that the regenerated part sometimes acquires an extraordinary diseased bulk; that Mascagni, Hunter, Rezia, Testa, Potoslongo and Moore have observed that the blood-vessels, the lymphatic and cellular vessels, the cartilages, and the bones, under the influence of inflammation, develop, extend, increase in bulk, and also that in pneumonia there are formed, as organic productions, certain cellular webs, which Maincourt distinguished from the false membranes, and which are traversed by ramifications of red vessels; and that, according to Cruickshank, even the nervous filaments increase. His expressions are accurate when he says that in diseased processes "nature strays from the laws imposed upon health," and calls the products of these processes "vegetations of unknown stamp;" but he falls back into the prevalent narrow system when he attributes all this to excess of stimulus, to over-excitation. That in generation, in the normal reproduction of parts cut off, in the process whereby from childhood till manhood the soft parts of the body go on hardening, there is an augmentation of excitation and of life, is, of course, true; but in all this there is no excess. Properly speaking, there is, not excess, but irregularity and abnormality in the animal operations when, "*without maintaining proportion* with the rest, the fœtus, as sometimes happens, developes to such a size as to be fatal to the mother. So true is this, that the mother is sometimes worn out in the rest of her body, lacking physiological force, and sometimes is even reduced to emaciation." If through slow phlogosis, a mesentery, or an omentum, or a vessel, grow to such a size as to be injurious or fatal through mechanical compressions, all this must be ascribed to animal activity, which accumulates its products in one place (of this law of locality we shall speak further on), not, properly speaking, to *excess* of excitation, inasmuch as the same or even a greater amount of excitation given to the animal under other circumstances, so far from being hurtful to it, may even be

advantageous. There is, therefore, a difference between *excess* of stimulus and *inopportuneness* of stimulus, between increase of vital action and vital action that has strayed from the laws of health. This, we repeat, cannot be called *excess* of excitation, except in the sense that whatever strays and injures is excessive. The word *excess*, used in this sense, would have imposed upon it a signification that does not properly belong to it, a signification according to which every cause of maladies would be an excess. The word *excess*, therefore, ought to be avoided.

CHAPTER XIII.

A DEFECT OF MODERN MEDICINE IS, THAT IT CONSIDERS DISEASE AS A *PASSIVE CONDITION*, WHEREAS, LIKE HEALTH, IT IS CHIEFLY AN *ACTIVE CONDITION*.

1981. In order to show more clearly how great a difference there is between *excess of stimulus* and *inopportuneness of stimulus*, we will point out to the reader that the former expression implies the notion that the physiological or pathological course depends upon the animal's being subject to a *passion*, whereas the latter involves the notion that said course depends upon an *action* of the animal itself.

1982. Even Tommasini sees that there is an open conflict between the system which pre-occupies him and the facts which fall under his observation. One of these facts is the condition of body which inflammation leaves behind it, a condition which makes inflammation more liable to return where it has once been, and to return for lighter causes. From this the professor is obliged to conclude that inflammation "transgresses the laws of habit, in accordance with which second impressions are always less felt and less hurtful than first."* According to our mode of conceiving the diseased course, the laws of habit are not in the smallest degree transgressed, because this course does not take its laws from the excessive *passive impression* of the stimulus, but from the activity of the twofold animal instinct. We have already distinguished two kinds of habit, the one *passive*, the other *active*, and we have observed that the passive habit diminishes the intensity and vividness of the new impression, whereas the active habit increases its action, rendering it more easy, more perfect,

* Dell' *Inflammasione*, &c., chap. i.

more intense. Thus, of two humane, kindly persons, the younger feels the sentiment of pity in a keener way; but the elder, with less sentiment, is the more active in giving aid to those that suffer.* If, then, the inflammatory process is plainly not subject to the laws of *passive habit*, as Tommasini confesses, and obeys that of *active habit*, we may see in this very fact a proof that such process is not determined by the quantity of the stimulus and excitation which it passively receives, but by the play of internal forces, which is disturbed by the stimulus, be it small or great, and, therefore, by its inopportuneness with reference to the state and condition of these forces.

1983. The *passivity*, upon which Brown made life depend, was by him considered so great that he derived from it the celebrated canon that the excitability of the fibre is exhausted by the action of the stimuli. "This theory" (writes Tommasini) "was refuted by facts, and, in Italy, Racchetti went so far as to maintain exactly the opposite, declaring that the excitability of the fibre is always increased by the action of stimuli." Tommasini tries to take a middle course, denying the generality of Racchetti's view "for reasons derived from habit."† But he did not observe that, besides the laws of *passive habit*, there are, as we have said, the laws of *active habit*, contrary to the first, and that the process of the animal nature agrees with these. We must, therefore, direct much more attention to the laws of *animal activity* than to those of *passivity*. Only then shall we be able to escape completely from the narrowness of Brown's system.

1984. A great hindrance to this escape has been the inconsiderate, blind war waged against the Animists. People were afraid of arriving at a *soul*, and therefore it seemed a prudent counsel to hold fast to the conditions of the *fibre*. Hence Tommasini, speaking of the consequence which inflammation leaves behind it in the body, that is, of the readiness with which inflammation again sets in, says that "this is necessarily the product of some change in

* *Anthropology*, 693.

† *Dell' Infiammazione*, &c., chap. ii, sec. 9.

those organico-dynamic conditions of the fibre, in which excitability is inherent."* But so long as one speaks of fibre, and the excitability inherent in fibre, one considers the phenomenon only from its passive side; whereas the true reason that throws light on it is found only when we consider it from its active side, that is, in relation to that principle which animates and moves the fibre itself. This principle, having the fibre as the term of its action, is excited by that term, and if then, following the law of animal spontaneity above referred to, it acts back upon the fibre so as to stimulate it, the effect is that the fibre seems to have excitability inherent in itself. Now there is no doubt that the animal principle, the soul, is subject to the law of *active habit*, which obliges it to perform with the least fatigue and the greatest ease and pleasure that kind of action which it has already often performed.

1985. And here we must further observe how the law of passive habit and the law of active habit, though opposed to each other, coöperate in such a way that the law of passive habit contains in large part the ground of the law of active habit.

And, indeed, if we start with the supposition that "the quantity of action performed by the sensual instinct is directly proportionate to the smallness of the obstacles which it finds in the way of its action and to the greatness of its own facility and delight," it is clear that the law of passive habit, which says that "disagreeable sensations diminish in keenness as they are repeated and continued," is what explains why an agent repeating its actions becomes more and more active and more and more inclined to perform them. It does so because there is a gradual diminution in the vividness of the discomfort, fatigue and difficulty which it felt at first, and this is all the more true in the case of diseased and troublesome action, which necessarily brings with it no small amount of discomfort. Thus, the laws of the two habits, far from being opposed to each other, reciprocally explain each other.

* *Dell' Infiammazione*, &c., chap. ii, sec. 9.

1986. Nor must it be supposed that between the two statements—that the sensual instinct finds inconveniences and discomforts in the way of its action, and that the quantity of its action is proportioned to the delight which it feels in acting—there is contradiction. For, in the first place, inconveniences, discomforts and difficulties may be, and indeed are, mixed up with the pleasure of action, and it is the prevalence which either of these two things happens to have in this mixture, that imparts to every action its character as pleasant or painful. In the second place, the comparison must not be drawn between acting and not acting, but between acting and the condition in which the animal would find itself if it did not act. In truth, it is quite possible that the action, considered in itself, may bring more pain than pleasure, but, at the same time, it may be one that the sensual instinct spontaneously seconds and continues, because, if it did otherwise, it would find itself in a more uncomfortable and painful state than it would by giving it full course. This agrees with what we said before, viz., that the quantity of the action of the sensual instinct is not merely in proportion to the degree of pleasure which it experiences in acting, but in compound proportion to this degree of pleasure and the impulse received from sensation at the beginning. Sensation gives the first excitation to the sensual instinct, which cannot cause it, and the degree of this excitation is what determines *cæteris paribus*, the maximum of action; but when this impulse is once received, the action of the sensual instinct, after its first motion, is diminished by the obstacles which it finds in its way, that is, by the difficulty, trouble and discomfort which it experiences. Hence the first movement imparted by sensation, if violent, may give rise to severe and inevitable disorders in the organization. For example, it is impossible to prevent a violent detonation from causing in certain sensitive persons an oppression in the epigastric region, or even fainting, syncope and other injurious effects, all produced by the spontaneity of the sensual instinct, which finds itself incapable of resisting

the first excitement of so unexpected and noisy a sensation. When I say that it finds itself incapable of resisting, I mean that the trouble and discomfort of resisting would be so great that it prefers to give free course to those movements initiated by sensation, although they are injurious. When the teeth are set on edge by the sensation caused by the passing of a file across a saw or by other sounds that lacerate the ear, the feeling is certainly not an agreeable one, but it cannot be avoided ; the spontaneity of the sensual instinct does not avoid it, because the impulse of the sensation is so strong, that to stop the oscillation received by the chord of the tympanum, and prevent it from being propagated to the lower jaw would cost so much labour and trouble that it is much easier to allow the spontaneity which propagates that movement to have its way.

We can, therefore, very easily account for the readiness with which inflammations are reproduced by referring it to the law of *active habit* which the animal principle obeys.

1987. Must we then exclude from among the causes of this fact the organic change of the fibre in which the inflammation recurs ?

Of course not ; we may easily grant that, after inflammation, the organic disposition of the fibre is modified. But it seems to us too bold a statement, and one which is not yet proved, to say that "the excitability of the parts, and their readiness to respond to stimuli, is a product, or even an immediate effect of the organization, and of those given organico-dynamic conditions that are inherent in the organism."* To attribute the degree and mode of excitability *exclusively* to the organization of the fibre is a theory altogether gratuitous and improbable.

Indeed, psychological facts belie the notion that the human system is so narrow as to recognise no other cause for the modifications presented by excitability but the mere organization of the fibre. The facts I refer to are those of the rational passions. Who, indeed, can deny,

1° That the rational passions are a stimulus to the

* *Dell' Infiammazione*, &c., sec. 5.

nerves and fibres?—Joy, anger, terror, love, may suspend the action of the heart, and Bichat tells us that he cured a man who, in consequence of a fright, had at once experienced a violent constriction in the epigastric region, shortly after had had his face suffused with a yellowish tint, and the same evening had found his lower limbs swollen. It is by no means a thing of rare occurrence to find that an excess of anger is followed by cutaneous and mucous inflammations, neuralgia and other diseased symptoms;

2° That the passions are subject to the law of *active habit*, seeing that they become more frequent and violent in their attacks, the more they have been freely seconded by the individual?

All this being granted, let us suppose for a moment that the organization of the fibre remained unimpaired, but that the habit belonging to the passion imparted to the rational soul a high degree of susceptibility, let us say of that susceptibility which a powerful and habitually proud man comes to feel at the smallest affront, at every bitter word, at every resistance to his nod; or of that which a lustful man comes to feel at the sight of any object calculated to feed his passion, or that of a person brought up to fear, accustomed to be afraid of everything, &c., &c.; is it not true that the fibre of such men, though not altered in its organization, will appear more excitable, because the animal principle which moves it, which feeds it, and which gives it that twist which suits its passion, has, by habit, been rendered more excitable, more active and more ready? Accordingly, if we find in the living fibre a greater mobility after it has been subjected to certain stimuli, we cannot at once infer from this that the change is inherent in its organization; I mean, we cannot conclude that this organization, which is so hastily assumed to have been modified, is the *only* cause of the increased excitability. On the contrary, it appears that a large portion at least of this apparently new condition of the fibre must be referred to the new circumstances into which the animal principle,

which informs, animates, and stirs the fibre, has been brought by *active habit*. This principle is certainly sometimes modified, independently of the fibre, by intellectual and moral causes.

1988. And we do not hesitate to apply a similar reasoning to what takes place in the lower animals, although their bodies receive no stimulus from intellective notions or moral dispositions, which they do not possess. Certain it is that they have an animal principle subject to the laws of *active habit*, independently of organization, and equally certain that animal instinct is subject to the law of *active habit* independently of organization. To what else but this are we to attribute certain unpleasant instinctive movements which we not unfrequently find certain persons making in society, movements which they would gladly avoid, but cannot? To what else but the force of active habit can we attribute the disagreeable habit of that gentleman, with whom I am so well acquainted, who at every two or three words, performs with his lips the movements that they make in smoking, and if by doing violence to himself, he abstains for a little, he afterwards repeats that operation two or three times over in haste as if to make up for what he had lost? It does not seem to me that any alteration has taken place in the organic condition of his fibres; but habit now imposes upon him the necessity of performing those movements, by which it seems that his fibre has become more irritable, more mobile. It is a convulsion of the lips, we are told; and indeed the fact that convulsions become frequent in an individual must be attributed in great part to *active habit*. In the activity of the animal principle we must likewise look for the reason why convulsions are propagated by imitation. In this case, it is certainly not the changed organization of the fibre that renders it more contractile, but the active principle of the animal that acts in the fibre, which therefore shows itself more contractile.

1989. And here we find a fresh argument tending to prove that we must not attribute merely to changes in the

organization of the fibre the various degrees of irritability and mobility which it shows, but rather to the different conditions of the active animal principle itself, which is modified independently of the fibre, and then moves and modifies the fibre itself, which is passive with respect to it. How powerful, in fact, is the instinct of imitation even in animals? This must certainly be attributed, not to the materiality or the organic conditions of the fibre, but to the sensitive principle; and if, employing another form of expression, we choose to ascribe these phenomena to the *dynamic conditions* of the fibre, this may be allowed, provided that the dynamic conditions are not made to depend on the organization *alone*, but, in part at least, on the force (*δύναμις*) residing in the animal principle. So far is it from being true that, when an animal acts by imitation, habit, imagination, or in any of the different modes arising from its sensitivity and *imitative force*, these actions are due solely to its organization, that this organization itself is purely passive, and therefore itself depends upon, and is modified by, those different kinds of action performed by the animal.

1990. All this, at the same time, does not preclude us from admitting that the altered organization of the fibre has its share in the phenomena of the healthy or diseased body, so long as we do not take this alteration as the active cause of them, and we do not pretend to explain them by it alone.

In truth, animal life results from various reciprocal interactions between the soul and the body.* Consequently, every action of the vital principle must have an influence on the state of the body, and every alteration in the body must cause a corresponding alteration in the state of the vital principle. If, therefore, the organization of the body is changed, the vital principle also and its activity are modified. But, contrariwise, if the activity of the vital principle undergoes any change, if this activity acts in a way that is corresponded to by internal movements in the tissues of

* *Anthropology*, 380-388.

the body, the inner organization of these must receive some modification from it. This shows that the organic condition of the fibres is a great deal, but not all. The fact that it is organized in one way rather than another must render it more or less impressionable, give it a greater or less passivity; but this mobility would be of no use to it if the motor principle, the cause of motion, did not act on it. Its excitability, therefore, is a passive relation toward the motor principle, nothing more. Now, just as the passive mobility may vary in the fibre, so likewise the active motor principle is subject to change in its active relation; its grades of activity diminish or increase, its acts become easy or difficult, &c., &c. The phenomenon, therefore, of greater impressionability or excitability in the fibre depends on two causes, and not one only, that is, it depends upon its increased passive mobility inherent in the organization, and on the increased active mobility of the animal principle.

1991. We shall also see how large a part the organization plays in the explanation of physiological and pathological phenomena (although the degree of excitability apparent in the human body must not be attributed to it alone), if we consider that the *fundamental feeling of continuity* is altogether dependent on the organization, and that on this depends in great part the *fundamental feeling of excitation*. Moreover, the sensual instinct produces a quantity of minute movements, which certainly must produce some changes in the texture and organic condition of the body. These minute movements are performed by means of the ganglionic nervous system.

1992. Hence Tommasini showed good sense when he wrote: "Perhaps a really inflamed part of the body, however well cured, never returns perfectly to its original and natural mode of being."* Indeed, we hold it to be an undoubted fact that, after any diseased alteration, the human body never returns to an organic state identical with that in which it was before, since the infinite internal move-

* *Dell' Infiammazione*, &c., sec. 5.

ments, and the molecules acquired and lost, can never, in our opinion, be so perfectly balanced as to restore the body everywhere and in every respect to the composition and organization which it previously had. Furthermore, we believe we may safely assert that there are not two successive moments in life in which the composition and texture of the parts is everywhere and in every respect the same. But the systematic error of our great physician lies in his maintaining that the excitability of the parts and their readiness to respond to stimuli depends solely on the organic condition of the fibre, and that from the amount of the stimuli we can infer the degree of change in it. The importance of this question induces us to try to throw more light on it, by specifying the different conditions which the state of the animal body may undergo from the alternate action of the two instincts, and this we shall do in the following chapters.

CHAPTER XIV.

APPLICATION OF THE ABOVE THEORY TO THE EXPLANATION OF THE VARIETIES OF THE ZOETIC CIRCLE OR COURSE.

ARTICLE I.

Varieties of the Zoetic Course.

1993. From what has been said we gather :

1° That from the first instant in which man is posited to the instant when he dies there is an uninterrupted series of alternate actions between the vital instinct and the sensual instinct, a series which we shall henceforward call the *zoetic course* ;

2° That the laws of the action of both these instincts are always the same, and can never essentially change ;

3° That to the alternate actions of the two instincts are equally due the states of health and disease, as well as the increase and decrease of the animal ;

4° That the state of disease, and diseased processes are only a part of the course of the alternate actions of which we speak, and do not interrupt, but continue this course, so that diseased and physiological phenomena do not essentially differ.

1994. From this it follows that, although the laws according to which the two instincts incessantly act are immutable and necessary, yet the alternating course of sensations and movements resulting from them is so diversified that it has a particular type in each particular species of animal ; and even in the same species it seems impossible to believe that there occur two individuals in which the course is exactly similar, or even that in the same individual it continues uniform in the various instants of life.

The varieties in the zoetic course in men must, therefore, be much greater than the varieties in their physiognomies, because, this course being as a chain of innumerable links of reciprocal actions, the smallest change in one link of it is sufficient to change the whole course, to open a new way by which it may diverge from its first direction. For brevity's sake, we shall call any couple of actions, the one belonging to the vital, the other to the sensual instinct, a *link in the zoetic chain*.

ARTICLE II.

How the First Steps of the Vital Instinct vary in the production of the Fundamental Feeling of Continuity.

1995. But if the laws of the two instincts are immutable, how is it that the zoetic course takes so many different directions, as to vary in every man and in every animal?

We have already seen the reason. If we wish to go back to the first causes which start the zoetic course in one manner rather than another, or, after it is started, make it diverge from its original direction, we must refer to causes extraneous to the animal, the chief of which is matter.

Matter sometimes obediently furnishes the vital instinct with its term; sometimes it battles with it and forces it to a painful struggle; sometimes it flatters it with an opportune stimulus, exciting it to a pleasant feeling, and sometimes it slips away from it, overcoming its power of retention and withdrawing itself from its action. All these different actions and attitudes assumed by matter toward the vital instinct oblige it to produce different feelings, which determine different zoetic courses.

1996. But we have said that brute matter is the principal cause which gives the zoetic course one direction rather than another, not that it is the only one. We used this reserve, because another cause external to the concept of the animal, but influencing the zoetic course, is intelligence, which in man is intimately associated with animality.

If, therefore, we consider animality in man, we find that the zoetic course receives impulses giving it one direction rather than another, or which make it diverge from its original direction, from two causes; from an inferior agent, which is matter, and from an agent superior to animality, which is intelligence.

1997. *Matter*, then, and *intelligence* are the two causes, which in the human animality determine the direction of the zoetic course in such a way that, when this course is determined by them (and supposing they do not cause any other irritation), it fatally follows the way prescribed to it by the laws of the two instincts without diverging either to right or to left. But if one of the two causes mentioned happens again to influence animality, this course is obliged to change direction, and follow the new way with equal certainty and necessity.

1998. We must, nevertheless, observe that as *matter* determines the zoetic course and makes it diverge by acting upon the *vital instinct* in so far as it is *passive* toward matter, so *intelligence* determines it and makes it diverge by acting on the *same instinct* in so far as it is *active* toward the same matter. Indeed, if a piece of bad news causes a feeling of sadness and depression, to what is this phenomenon due but to the fact that the intellectual soul, being pained by the fatal news, withdraws the forces of the vital instinct and, partly, also of the sensual instinct, thus making the blood run slower and causing other symptoms of weakness and collapse? Hence the degree of the activity of the vital instinct is increased or diminished by the direct action of the intelligent soul, and so the zoetic course is changed.

ARTICLE III.

How the First Steps of the Sensual Instinct vary.

1999. If, on the other hand, we wish to consider the first steps of the *sensual instinct* and inquire how they are determined, it follows from what we have already said,

that what determines them are the *first feelings*, which are effects of the vital instinct. Hence, whatever may be the kinds, forms and grades of the *first feelings* produced by the vital instinct, there is an equal number of kinds, forms, grades among the first movements caused in the animal body by the *sensual instinct*. The whole zoetic course, therefore, depends upon the *first feelings*, and these depend upon the two causes referred to, matter and intelligence.

2000. Let us enumerate the *primitive feelings*,* according to their types or full species,† and let us see to what special causes each is due, and how it initiates a different zoetic course.

The fundamental feeling has for its terms continuous matter and motion: let us speak of it in so far as it has for its term continuous matter.

To the fundamental feeling of continuity there must be given a matter with certain dispositions preceding the action of the vital instinct.

But since so general a proposition cannot be proved, there being no such thing as isolated *matter* or an isolated *vital instinct*, we must suppose, first of all, an animated germ, having some kind of matter suitable to the animating action of the vital instinct, with an organization, called the *primitive type* of the animal, offering opportunities for a higher development by means of incessant movements caused by the sensual instinct.

2001. This being premised,

I. The animal cannot preserve its life unless it receives as its nourishment a matter having certain dispositions preceding the action of the animal instinct.

This proposition will be evident to all those who reflect that not all material substances are fit to act as nourishment to the animal.

It is absolutely necessary that molecules of oxygen and molecules of azote should be continually substituted for

* By *primitive feelings*, I mean those belonging to the first link of the zoetic chain.

† *New Essay*, &c., Vol. II, 509n.

those which the animal continually loses. Magendie, having fed some dogs upon substances containing no azote, like sugar, oil, water, &c., found that they died in a short time of atrophy.

If *oxygen* did not nourish the blood, the animal would die of asphyxia. Usually, moreover, it is not enough that the oxygen should be received through the lungs by respiration, it nourishes and supports the animal by insinuating itself likewise through the skin. Magendie, again, having covered the whole of the bodies of some rabbits and other animals all but the faces with a viscous coating consisting of a concentrated solution of gum, gelatine and turpentine, so that the skin could no longer absorb the atmospheric gases, though the animals breathed freely, they died in a few hours of asphyxia.* Magendie, on the other hand, had also shown by experiment that the epidermis and, in general, all membranes are permeable by gases.†

2002. II. In order that the vital instinct may be able to invade any piece of matter, this must not only have a certain quality, depending probably upon its form and composition, but also be placed in continuity with the animated

* It is to be observed that, when the autopsy was made, the vessels of the surface of the body were found entirely empty and all the blood concentrated toward the heart and lungs. This seems to show that the vital movements of the vessels were prevented at their extremities, whether from want of the external stimulus due to contact of the skin with the atmosphere, or from the mechanical impediment caused by the viscous coating, which may have been too strong to be overcome by the forces of the animal instinct. Accordingly, this fact seems to confirm the theory of modern physiologists, that the circulation of the blood is due, in great part, to the tonic movements of the vessels, and also to show that where these tonic movements are greater there must be excited a greater flow of blood, and where they are less, a less flow: and it is highly probable that if such movements ceased altogether in one part of

the human body while they continued in others, the blood would flow to these, leaving the first empty. So true is it that even the circulation depends upon the activity of the vital principle or the soul.

† That a bladder full of venous blood suspended in the air allows oxygen to pass through, is shown by the red colour which the blood very shortly assumes. If camphor and ether are put into a clyster, the person who takes it soon exhales in his breath the odour of these substances. This phenomenon is due to the absorption of the odorous particles by the venous network of the rectum. In this way they enter into the blood, are carried to the lungs, and thence are exhaled through the walls of the capillaries. Thus the molecules of these liquors entering by one of the walls of the membranes pass out by the other, showing that the membranes are permeable in both their surfaces.

body. Although experience neither does nor can show the necessity of this continuity, yet it may, I think, be shown by reasoning.

2003. III. This suitable matter must, further, be elaborated by the vital instinct through the living body, that is, it must be divided into minute parts, recompounded, purged, classified, distributed.

2004. IV. It must receive from the soul that last quality which renders it active upon the soul itself, and of which we have elsewhere spoken.*

2005. Given these conditions, we can conceive the fundamental feeling as brought into being and as preserving itself. By means of the first three the organization is formed, and by means of the fourth it is endowed with that last act which is called extra-subjective life, and which, in its turn, renders the body active toward the soul, as it must be in order to account for the passivity which appears in feeling. And all these conditions are met with in the animate germ, in which the animal begins. They may be reduced to three, and set down as (1) suitable matter, (2) continuity, (3) animalization.†

2006. This last condition, this last act which makes the extra-subjective life of the body, given the organization, depends upon the activity of the sensitive soul. And as this activity may be modified by the influence of the intellectual principle, the production of life and consequent feeling is modified at every moment, so that the vital effect and the production of the fundamental feeling may be prevented, and then there shortly follow disorganization and death. Nicholls tells us of an English lady of his time, who, being caught in adultery, suffered such shame and grief that she fell into a fever which brought her to the point of death. Having obtained from her enraged husband promise of pardon, and having returned to the

* *Anthropology*, 380-384.

† We reduce them to three, because we wish to leave it doubtful whether *original* matter receives all the conditions that render it suitable for ani-

mation, or whether it acquires some of them from the action of an external cause, say from chemical actions and reactions, or from the Divine framer of the first human body.

hope of pleasing him, she recovered from that extreme danger. But on seeing her cured, the relatives of the husband persuaded him that his faithless wife had feigned her sickness in order to obtain pardon from him ; whereupon he left for the country, and thence sent a message to his wife, saying that he had done enough in preserving her life, and that he now meant to sue for a divorce. The unhappy woman, not knowing what to do, could give no other reply except that she was already dying, and indeed, her pulse gradually diminished, followed by an oppression in the chest, and in a few hours she breathed her last.* What fact (and there are thousands of similar ones) could better prove that the condition of the intellectual principle influences the *activity* of the animal principle, increasing it, diminishing it, binding it and loosing it?

The *fundamental feeling of continuity*, therefore, varies in man, in the first place, according to the condition in which his intellectual principle happens to be.

2007. In the second place, it varies according to the degree of continuity existing between the living molecules.

It seems probable that life does not demand, as its condition, a continuity so determinate as not to admit any sort of modification. Indeed, it seems to me probable that in the continuity of the molecules there are two limits within which life is preserved in perfect condition—I mean the mere life of continuity, which seems to demand continuity and nothing more. The greater or less continuity depends upon the form and size of the molecules which leave interstices more or less numerous and more or less wide between them.

2008. Now it seems that the more compact the compound is, and the greater the number of points in which the particles osculate, the more firm and strong must the life of continuity be ; but the too close adherence of the molecules prevents their movement and so must diminish the life of excitation.

* Nicholls, *De Anima Medica*, pp. 15, 16.

2009. Now, the feeling of excitation is very much more than the feeling of continuity. The animal instinct, therefore, tends, on the one hand, to accumulate feeling by crowding the molecules together, and placing them in such attitudes that they touch each other with the greatest possible number of surfaces; on the other, it tends to aid their reciprocal and organic movement, and hence to round them and keep them apart from each other in the greatest possible number of points, without making them lose continuity. This is a real problem of maxima and minima which the animal principle solves in practice.

2010. The fundamental feeling of continuity, therefore, varies also according to the greater or less continuity of the molecules of which the animal is composed.

It varies likewise according to the absolute quantity of the matter which forms its term, and according to this quantity it is more or less extended.

2011. If a living body loses a certain number of molecules, this loss is wont to have two effects: (1) it diminishes the extent of the fundamental feeling of continuity; (2) it more or less modifies the fundamental feeling of excitation.

The first effect is the loss of a certain part of the feeling of continuity. We must observe the difference between this loss and the modification which the feeling of excitation undergoes. The latter implies that molecules change their places without losing their continuity. When this change of place diffuses itself in a given organ beginning with the physical centre of the animal, in accordance with certain laws, there arise special sensations, and the faculty of these may be called *special sensitivity* or *special excitation*. Such is the sensitivity of the two orders of nerves. The other parts of the body, being incapable of those large and special excitatory movements, have only the fundamental sensitivity of continuity, which is modified without rousing our attention, by densification, by rarefaction, by the admission of new molecules, by the rejection of old ones, &c., &c. In this sense all the parts of the body may be said to

be sensitive; but they are not all sensitive as the nerves are, whose sensitivity is excitable and special.*

2012. Finally, the fundamental feeling of continuity varies according as its matter is more or less predisposed to receive the action of the vital instinct and, along with that action, life. To describe and enumerate these predispositions is a task far beyond my limited knowledge. I can only in part tell even the true causes which impart to matter the predispositions necessary for life. So much, however, appears from what has been said, that the matter added to a living body must, before it can be animated with the life of that body, have certain qualities or forms, on account of which such names are given to it as azote, oxygen, &c. It appears further that this matter must be elaborated by the living body which it approaches, an elaboration which will be more or less perfect according as the living machine which elaborates it, and the principle which moves all that machine, are more or less perfect. But whatever may be the causes that impart to matter the predispositions preparatory to life, it is certain that even in these predispositions there are degrees, limits of greater or less predisposition, within which life takes place.

2013. The question whether the predispositions of matter may vary without any detriment to the perfection of life, so that even in that perfection there may be degrees, or different equivalent forms, is one that is very much more difficult to settle experimentally.

By perfection of life I mean that complete triumph of the vital instinct over matter, which leaves no struggle between the two elements, but enables the one to rest in the other with an absolute act of domination. It is, of course, not impossible to conceive that the vital instinct may completely invade matter, or that it invades it with greater or less force. The fact that the intellectual prin-

* In some of my previous works I have expressed grave doubts as to the existence of that sensitivity which some physiologists call latent (*New Essay*, 696 n3; *Anthropology*, 377-379). But now, when I reflect that by *latent sen-*

sitivity one may mean the sensitivity of mere continuity accompanied by no excitation for want of proper organs, I allow that we may admit such a sensitivity in this sense.

ciple has an influence upon the increase and diminution of the forces of the animal principle shows that the power of the latter varies in degree. Besides, there is no reason why, according to the disposition of matter, the vital instinct should not produce in it different effects, imparting the life of continuity to one part, the life of excitation to another, and so on.

But the determination of these various effects, these various degrees, is a task that has not yet been attempted.

ARTICLE IV.

Varieties of the First Motion which the Sensual Instinct receives in virtue of the various conditions of the Fundamental Feeling of Continuity.

2014. Now, every variety of the *fundamental feeling of continuity* is an element of variation for the sensual instinct, which receives from it a different attitude. But what is the effect of this attitude?

2015. The sensual instinct tends, in the first place, to maintain feeling. At the same time, this effect, in so far as it opposes itself to the forces which try to destroy or diminish it, may be attributed also to the vital instinct. This, indeed, is the point in which the two instincts agree; for if the vital instinct is what produces feeling, it must also be what preserves it, because preservation is a continuing to produce. With the same act whereby it is produced it is preserved. On the other hand, if the sensual instinct is what acts in consequence of a feeling, in order to continue it and increase it, this activity which tries to continue and increase feeling must, first of all, tend to preserve it. The truth is, that the two instincts are but one and the same activity, and we include them both under the denomination of *animal instinct*. But inasmuch as the effects are divided into two classes, we give the same activity one or the other of two names, according as we consider it as the cause of one class of effects or of the other. These classes are distinguished by this, that the

effects belonging to the second follow those belonging to the first, so that the activity itself does not produce these in its first moment, but in its second; not when it begins to act, but when it continues the action; it is the same activity, but raised to a second degree of development. And since the second effects can begin only where the first leave off, there is a common point between the two actions, the point at which the first ceases and the second begins. Hence it is that the preservation of a feeling has the characteristics of both classes of effects, because the duration of a feeling involves, on the one hand, the concept of *production*, on the other, that of *continuation*. It is, therefore, an effect due to both instincts, which at bottom are one activity.

2016. If, then, we consider the preservation of a feeling as the effect of the sensual instinct, it will vary, (1) in *force*, according as the efficacy of the vital instinct is greater or less; (2) in *extension*, according to the quantity of matter; (3) in *consistency*, according to the continuity or density of this matter; and (4) in *character* and quality, according as the matter is organized in one way or in another, and according as its qualities preparatory to life have greater or less perfection.

2017. Finally, if we suppose that some particles not altogether devoid of the predispositions necessary to life are in conflict with the vital instinct and produce the state of pain or discomfort (a state which also varies according to the nature and degree of the unsuitableness of these particles, their qualities, their collocation, &c.), the varieties of the forces of the vital instinct impress a different stamp on the activity of the sensual instinct.

2018. In general we must observe that the fundamental feeling of continuity is not calculated to move the sensual instinct to its act, but merely to place it in one attitude rather than another, to constitute and determine it as a power. Indeed, in order to move the sensual instinct to action there are always required excited feelings, which are of their nature transient. We must, therefore, speak

of the feeling of excitation, in order to explain how the sensual instinct is aroused to its acts.

ARTICLE V.

Varieties of the Motions received by the Sensual Instinct in virtue of the varieties that come within the Fundamental Feeling of Excitation.

SECTION I.

Multiplicity of the Variable Elements in the Fundamental Feeling of Excitation.

2019. Let us begin by supposing a group of living particles in contact with each other.

As soon as any stimulus drives those particles from their original position, without thereby destroying their continuity, we say that the feeling in that group is modified and excited and sensations spring up.

2020. These sensations admit of infinite varieties. Rapidity, frequency of motion, number of particles, reciprocal pressure, force due to the greater or less concentration of the vital principle,* &c., are so many variable elements, which must change the character, degree and number of the sensations, and it belongs to the progress of science to determine, as far as possible, all these sensible differences of which a living being is susceptible.

2021. But, by the expression *fundamental feeling of excitation*, we do not mean any or every complex of feelings, but only that complex of excitations and sensations, which, by reason of the unity of its harmony, is unified in an individual feeling preserving the same type, which type is the foundation of the species of the animal itself.

2022. From this we see that even in the fundamental

* Although the sentient principle is simple, still, inasmuch as it contains within it the whole sensible body (the extended, as we have said, is in the simple), its activity displays itself to a greater extent in that part where the fundamental feeling of life is greater. The place in which this feeling and,

consequently, the sensitive activity are strongest, is called the centre, and when this place is one and not very extended, the sensitive principle is said to be most concentrated, in relation not to itself, but to its action on the sensible body. In the more perfect animals this physical centre of activity is the brain.

feeling of excitation there are implied *natural stimuli*, which reproduce themselves according to an unvarying law, but which admit of varieties in the various individuals of the same species. These stimuli are foreign to the animal, which is a substantial feeling, and belong to the sensiferous. Their effect is extra-subjective movement, which is accompanied by sensation or the harmonious complex of continually reproduced sensations which constitute the fundamental feeling of excitation. And it is these sensations that, before all others, give an impulse to the sensual instinct and bring it to its first act, which consists in seconding these sensations and thus helping the movements which produce them to continue and repeat themselves.*

SECTION II.

Concept of Stimuli.

2023. Let us, then, first of all ask what concept we must form of *stimuli*.

The stimulus, or stimulating power, is derived from material, mechanical, physical, chemical and other forces; in a word, from all the forces foreign to the vital force of the individual animal.

2024. They act in opposition to this vital force, and this opposition is most clearly manifested in the living solid when material or any other foreign force is applied to it so as to produce any movement within it.

Every movement produced within a living solid may be considered as the effect of a stimulus.

2025. In man the stimuli are divided into two classes: (1) the intellectual forces, in so far as they influence the vital force; (2) material forces.

2026. Let us consider only the varieties of material stimuli. These may, in the first place, be divided into two classes.

* The sensations which do not go to form part of the harmonious whole are not feelings belonging to the individual, and it is for this reason that when, by the binding of a nerve, the movement produced by a stimulus is prevented from reaching the brain, the animal does not feel the corresponding sensation.

1° Material substances composing the living body;

2° Material substances not composing the living body.

2027. The material substances composing the living body are divided into fluids and solids; the first play chiefly the part of stimuli, the second of things stimulated.

2028. Giovanni Rasori does not consider all the fluids of the living body to be stimuli, but, confining the stimulating faculty especially to the blood, regards the bile, the gastric and intestinal juices and the fatty principles which penetrate all the viscera and even the smallest fibres, as *counter-stimulant* substances. But, in the sense in which we use the word *stimulus*, we cannot admit the existence of material substances really *counter-stimulant* in a positive sense, but only in a negative sense, as substances capable of hindering the application or the action of stimuli, or of destroying the motion produced by a stimulus by means of a contrary motion, not as substances capable of directly lowering the vital force, unless, indeed, they are disorganizing substances.

2029. For this reason it seems to us better to consider nothing as a counter-stimulus except (1) what disorganizes the machine, (2) the sensations and affections which, by means of the sensual instinct, directly diminish the force of the vital instinct.

Let us, therefore, consider those material substances which, when applied to the body, produce a retardation and a diminution of the vital movements as indirect counter-stimulants.

2030. Now if "stimulus is everything that produces an internal movement in a living solid," the concept of stimulus may always be reduced to that of a cause of motion within a living solid, and, therefore, there is no stimulating action without motion.

If, then, we suppose that motion is produced by material causes, these may act either chemically, physically or mechanically.

The same agent may act upon the human machine in all these three ways. But it must be observed that the agent

acts chemically chiefly on the fluids of the living body ; on the solids, the external agent acts to a much greater extent physically and mechanically.

The air acts chemically on the blood ; physically with its weight on the whole body, mechanically with its impulse and movement.

The impulse which the red blood gives to the brain and to all the nerves is a mechanical mode of action ; but, besides this, the blood acts in a way which cannot be called merely chemical, but must be called chemico-vital, in animating and nourishing all the tissues ; because it is its chemical forces associated with the vital forces that produce these last effects.*

2031. Although solids are not in themselves stimuli, but things stimulated, yet they produce stimuli by means of the secretions of fluids and by means of the movement and direction which they impart to these. Thus they determine the blood to flow to a wounded part, in this way increasing the stimulating action in it.

Moreover, since it is the solids that elaborate and secrete the fluids, the normal or abnormal action of the solids alters the nature of these fluids for better or worse. If by a spasm in the solids, for example, the blood is too much accelerated and heated, it becomes inflamed, the fibrine tends to separate from the serum and the clot, so that when it is drawn from the veins, the buffy-coat shows itself. The disposition which the fibrine shows in this case to separate from the other two elements tends to disorganization. Here there is a manifest conflict with the vital principle, which has lost somewhat of its dominion over the material forces.

2032. Excitation is a condition of the animal, provided it be such that (1) it does not tend to destroy the continuity of the parts, (2) that it tends to perpetuate itself,

* The evident fact that chemical actions, although of a special character, take place in the vital operations, adds probability to the view that the chemical forces are really vital forces, bound

up with inorganic bodies, and moved by other sentient principles forming different individuals, which are afterwards merged in the larger individual.

and (3) does not tend to destroy the unity and individuality of the animal. Hence it is a pleasure, and even a necessity, for the animal to be stimulated; it is necessary that a certain system of stimuli should be continually applied to the animal.

In the second place, we see that not every excitation, but only a certain kind of it is congenial; not all stimuli, but only certain ones are suitable to the animal.

2033. The unsuitable stimuli, consequently, are:

1° Those that tend to destroy the continuity of the parts;

2° Those that prevent the continuation of excitation, either by impairing the organization, or by interfering with the application of opportune stimuli, or by provoking movements opposed to those provoked by opportune stimuli;

3° Those that tend to destroy the unity and individuality of excitation.

This confirms the truth that it is not the quantity of a stimulus that renders it pernicious, but its inopportune-ness; although it is true that even the quantity, if it goes beyond certain limits, renders it inopportune.

2034. As the matter composing the living body may be considered in the light of an agent stimulating the body itself, whether as reduced to a state of fluid, or as moved from its place; so we may consider in the light of a stimulating agent every piece of matter which is external to the human body, and which, when applied to it in any manner, produces internal movement in its solids; for even the matter external to the human body may, in virtue of its chemical forces, or by its mechanical movement, or by the special condition of the parts of the body to which it is applied, or by any other circumstance, become a suitable or an unsuitable stimulus.

2035. The inopportune-ness of the stimulus, therefore, does not consist in the fact that the stimulating matter is external to the body, but in the fact that it produces upon the body an action out of harmony with that of the vital

forces, in other words, contrary to any of the three conditions of the animal, the continuity of the parts, perpetual excitation, and individuality.

2036. External matter is either solid or fluid.

Solid matter, when not passing into the fluid state, when applied mechanically to the human body generally, does no more than produce movements in some parts of it.

On the contrary, matter which is fluid, or which becomes such when placed in contact with the human body, may be drawn into the vortex of life. The vital principle sometimes tries to invade it by projecting its own feeling into it, and thus that matter may become nutriment for the body. But between the condition of such matter when it is altogether external to the body, and its condition when it is assimilated by it, there is an intermediate time and condition, in which the act of nutrition (this word being taken in its widest sense) is going on.

2037. Even nutrition, therefore, is carried on by means of stimuli; the matter which is to pass into nutriment, when applied to the living body, stimulates it. In consequence of this stimulus, the living body appropriates the nutritive matter, segregates it, distributes it, and, if it is solid, grinds it and dissolves it into a liquid, so as to feed on it; and all these movements are excitations pleasant to it.

But if the matter is not disposed as it ought to be, then there arises a conflict between its chemical and mechanical forces and the vital forces of the animal, which are unable to invade and dominate it, and hence follow the pain, discomfort, and, in a word, the injurious effects which the living machine experiences.

Moreover, if the matter exerts on the living body a chemical force contrary and superior to the vital force, so as to deprive it of the organization and attitude necessary for life, then it destroys the animal by depriving it of its matter. This is the effect of poisons and powerful solvents like fire, &c.

SECTION III.

Varieties of Movement received by the Sensual Instinct from the Sensations which variously constitute the Fundamental Feeling of Excitation.

2038. Whenever a stimulus, applied to a group of living molecules so as to change their relative positions without driving them beyond the sphere of continuity, excites sensations, the sensual instinct begins to act with an effect proper to itself and no longer common to it with the vital instinct. Then the action of the sensual instinct, being intent upon aiding the production of the pleasant sension, necessarily seconds the movements which have been started by the force of the external stimulus and which increase the degree of its pleasure. It seconds them and carries them far beyond the point to which the force of the stimulus would by itself carry them, and continues them spontaneously even after the stimulus has ceased.

2039. Indeed, if this action met with no opposition, if contrary forces did not weary it and continually diminish the quantity of the motion, there is no reason to believe that the movement, once begun, would ever cease; so that we may fairly say that the *sensual instinct*, considered in itself, as contradistinguished from all the brute forces, is a cause of perpetual motion.

2040. If, therefore, the motion of the sensual instinct ceases, the causes of this are the obstacles which it meets chiefly in the inertia and the attritions of matter, or also in the opposite tendency of the instinct to preserve the feeling of continuity and cohesion.

Hence, in order that the original and natural movement may be continued, it is necessary that the stimuli should be reproduced; and nature makes this possible, partly by keeping new external stimuli always in readiness, partly by the marvellously ingenious organization of the living body, which causes the living parts themselves, which are moved by the sensual instinct in order to prolong and increase sension and excitation, to become them-

selves stimulants with their motion, or generators, movers and directors of stimulating fluids, thus producing new sensations which again renew the activity of the sensual instinct, enfeebled by the difficulties which it has encountered.

2041. The living parts of the body become stimuli of other living parts, because life does not deprive them of sensiferous force.

But in order to secure the continuation of the motions produced by the sensual instinct, and, through them, to secure the reproduction of stimuli and consequent sensations, the greatest regularity and proportion must be maintained between the sensations of the first link of the zoetic chain and those of the second and following ones, and so also between the movements of the first link and those that come afterwards, so that no break may occur, but everything go on in a circle according to a perfectly regular law of succession. In order to arrive at this, the organization of that group of molecules which we call the living body must be so cunning that the stimuli reproduced by the sensual instinct as well as those furnished by external nature shall always be of the same kind and have a constant or progressive activity. Then, and then only, there manifests itself in that group of living particles the phenomenon which we have called the *zoetic course*.

2042. In the system which holds that all the elements of bodies are animate, this characteristic phenomenon of the animal becomes the specific difference between what are usually called brute bodies and animals, and this difference enables us to perfect our definition of the animal. We have elsewhere defined an animal as "an individual being materially sensitive and instinctive:"* at present we may include in it the difference which separates it from the so-called brute bodies, and then the definition will take this form: "An animal is an individual being materially sensitive and instinctive, in which the excited sensitivity, according to a fixed law, reproduces an alternation of stimuli, sensations and movements."

* *Anthropology*, 45.

2043. And in so far as this alternation is habitual and normal, in other words, such as is requisite for the well-being of the animal, in so far the innumerable sensations which it contains and reproduces as belonging to a single sensitive principle, constitute the *fundamental feeling of excitation*, of which we usually have but a very obscure consciousness.*

Now the first sensations are effects of the vital instinct and of the external and internal stimuli applied by nature to the fundamental feeling of continuity. These stimuli and the movements which they produce do not belong to the sensual instinct. This begins to act only in those first sensations which it tries to aid, thereby causing the continuation of the excitatory motions. We must, therefore, consider as the first link in the zoetic chain that which is composed, (1) of the first sensations, and (2) of the movements continued or produced by the sensual instinct in consequence of these.†

2044. The *movements* which cause the *sensations* in question vary for many reasons, which may perhaps be reduced to the three following classes :

1° All the differences which we have noted in the fundamental feeling of continuity influence the movements that produce the fundamental feeling of excitation, and occasion as many corresponding varieties in it ;

2° There is a great variety of kinds of organization capable of causing a fundamental feeling of perpetual

* In order that we might easily arrive at consciousness of those sensations which are continually reproduced and become habitual, it would be necessary that a part of them should cease or be greatly retarded. If, for example, the circulation of the blood were suddenly to cease or become slow, we should experience a feeling of weakness and sinking in all our senses ; but then syncope would follow and our intellectual attention would no longer be able to apply itself to thinking what took place in us. When Jean Baptiste Denys and Emmerez injected the blood of a lamb into the veins of a man, in the

year 1666, the man became aware that the warm blood had gone up as far as his heart (*Journal des Savans*, 1667, pp. 87-94. 182-185). This shows that the sensibility of the vessels is capable of being made consciously perceivable by the mere novelty of an increased degree of warmth due to an external cause.

† Previous to this first link of the chain there is another couple of phenomena : (1) the fundamental feeling of continuity, (2) the extra-subjective movements produced in the body living the life of continuity, by stimuli applied by nature.

excitation, and so keeping the animal within the above described circle of sensations, movements and stimuli without conflict or pain ; and these different kinds of organization, and these organically different zoetic courses constitute, as we have already said, the types of the different animals, from the zoophytes up to man ;

3° In animals of the same type, even if we suppose them to be in full health, the fundamental system of excitatory movements is variable according to the quality of the tissues, which, especially in man, may be more or less dense, more or less individuated, &c., according to the greater or less force of the vital instinct ; and these accidental varieties of the same type constitute the various *characters* observable in the same species of animals, the *various temperaments*, the various degrees of *robustness*, the *various susceptibilities*, &c.

Every *fundamental system* of such movements is the basis of a different zoetic course, which differs in the different species of animals, as well as in individuals of the same species.

ARTICLE VI.

On the Starting of the Zoetic Course by External Stimuli which cause the First Movements, and on the necessity of the Continual Presence of these Stimuli.

2045. The zoetic course, therefore, is started by stimuli externally applied to a body living the life of continuity.

I say *stimuli externally applied*, because we must distinguish the external stimuli which the living being receives and does not produce for itself, from those which it does produce internally by its own action. The first are air, water, cold, heat, food, all the foreign bodies which, when applied to the animate machine, cause in it some salutary or pernicious effect, and the intellectual principle.

2046. In order to conceive the immense variety of these, we must make different suppositions. Here are a few :

First Supposition.—That the foreign stimuli at first applied to the body are not renewed. In this case the zoetic course will terminate in a short time with death.

2047. *Second Supposition*.—That the foreign stimuli, the same in quantity and quality, are constantly renewed, that is, that the same air, the same light, the same heat, the same nourishment, &c., are continually reapplied to the body. In this case the zoetic course will carry the animal through a succession of better or worse states, whose variety in the direction of better or worse will depend upon the action of its internal forces, determined by that one kind, quantity and quality of stimuli which is applied to it. Nevertheless, it appears evident that the zoetic course could not long continue under these conditions, since the constitution of the animal demands diversity of stimuli, especially in regard to quantity. The grown man, for example, requires more food than the child, &c.

2048. *Third Supposition*.—That the application of these stimuli takes place continuously or periodically; in a word, that the time of the application of these stimuli varies, and varies in all possible ways. It is plain that every variety in the time of the application of the same stimuli changes the zoetic course; that is, determines a new course.

2049. *Fourth Supposition*.—That the external stimuli which are renewed change only in quantity.

Fifth Supposition.—That they change in quantity and also in the time of their renewal, continuance or removal.

Sixth Supposition.—That they change only in quality.

Seventh Supposition.—That they change in quality and time.

Eighth Supposition.—That they change in quantity and quality.

Ninth Supposition.—That they change in quantity, quality and time.

All these suppositions imply innumerable different determinations of the zoetic course. And yet all these changes of external stimuli are just what actually takes place. It follows that there are not so much as two instants in life in which the external stimuli applied to the living machine do not change in a thousand ways, in quality, quantity, time, mode of application, &c. Hence

the zoetic course changes its direction at every instant of life, and it does so from a number of causes combined, any one of which is sufficient to cause a deviation; but all these new directions which it is continually taking are not necessarily diseased.

This fact goes to show that there are innumerable directions and changes possible for the zoetic course, which do not carry it beyond the limits of a healthy condition, and that the health of the animal is not confined to a single line, but may, so to speak, extend itself over a territory, although if it go beyond that, the animal enters into a diseased state, or merely into a state of decay, if we choose to distinguish disease from insensible decadence.*

2050. Just as we can distinguish external *stimuli* from internal ones produced by the action of the living being, so we may distinguish the excitatory *movements* of sensation, produced by the original external stimuli, from those which are produced by the secondary and internal stimuli.

I call *original* stimuli those which are given to the animal and not produced by it, and *secondary* stimuli those which the animal produces for itself in consequence of the alternate actions of the zoetic course.

2051. Both the original movements and the secondary movements may be divided into three classes, when viewed in relation to the effects which they produce in the three elements which go to compose the animal, (1) continuity of parts, (2) excitation, (3) individuation of excitation.

Moreover, movements may be beneficial or prejudicial to each of these elements,† so that there will be six classes of excitatory movements for each of the two kinds :

* When there is merely a loss of particles, or a consolidation of vessels and parts up to a certain point at which the animal functions still go on, although with less activity, we do not usually call such a change, which comes insensibly and does not greatly impair the functions, a *disease*. The mark of a disease is a grave impairment or disorder of the functions.

† There is nothing absurd in suppos-

ing also a third kind of movements, namely, *indifferent* ones, that is, movements which alter the condition of the animal, but neither for better nor worse. But since this seems a continuation of equilibrium very unlikely to occur, we have omitted it in order to simplify an account which is already complicated by a large number of elements. But it is proper that the reader's attention should be called to it.

Movements	1° beneficial	}	to suitable continuity ;
	2° hurtful		
	3° beneficial	}	to excitation ;
	4° hurtful		
	5° beneficial	}	to individuation.
	6° hurtful		

It is plain that these six varieties may occur both in the original movements produced by external stimuli, and in the secondary movements produced by internal stimuli.

ARTICLE VII.

On the Variety occurring in the Complex of Sensations produced by the Original Movements which constitute the Fundamental Feeling of Excitation.

2052. Having considered the variety of *stimuli* and *movements*, we come now to *sensations*, which are also divided into two kinds, the original and the secondary. The original sensations are due to the movements produced by the original stimuli, and, in so far as they are natural and typical, form the fundamental feeling of excitation. The *secondary* sensations belong to all the subsequent links of the same chain.

2053. Just as the animal being has what may be called two faces, the one subjective, formed of feelings, the other extra-subjective, formed of movements ; so the classification of movements is repeated in sensations. Indeed, the classification of sensations and that of movements run parallel, each serving as the basis of the other.

We must, therefore, observe generally with respect also to sensations, that there are sensations beneficial, and sensations hurtful, to the feeling of continuity, to the feeling of excitation, and to the individuation of feeling. And this classification holds good in the class of original sensations, as well as in that of secondary sensations.

ARTICLE VIII. (*Continuation.*)

Summary of the Laws governing the Action of the Sensual Instinct when once roused by the Original Sensations.

2054. The original sensations give the impulse to the sensual instinct which by means of them puts itself in motion. Let us briefly recapitulate the laws which we have above assigned to the action of this instinct.

First Law.—Given a sensation, the sensual instinct immediately goes into action, and produces movements which help to increase pleasure or diminish pain.

In either case the sensual instinct comes to the aid of the vital instinct, which produces pleasure and struggles with the hostile power that hinders it from so doing.

2055. *Second Law.*—The amount of the tendency or activity with which the sensual instinct goes to work, is equal to the intensity and, generally, to the quantity of the feeling excited.

The feeling excited is more or less keen according as the vital instinct is more or less strong. But the strength of this instinct depends upon the causes indicated, and, in man, particularly upon the affections of the intellective principle. We have seen that a great rational apprehension produces fear, an animal passion which weakens the powers of the vital instinct. The degree of these forces, again, depends directly on the animal affections. Fear, sadness, &c., in so far as they are animal affections, may be effects of movements roused by the action of the sensual instinct: this instinct, therefore, again has an immense influence in strengthening or weakening the vital instinct, so that the two instincts reciprocally influence each other.

But whatever may be the causes that render the vital instinct stronger or weaker, it is certain that its strength determines whether the sensations which it produces under the same stimuli shall be weaker or stronger, and so more or less active in arousing the sensual instinct to its action.

2056. This is what gives rise, in a state of health, to the

different temperaments, the sanguine, the melancholic, the choleric, the phlegmatic.

It is also what gives rise to the division of diseases into *acute* and *chronic*. When the fundamental sensations are obtuse and the whole sensitivity slow, then the sensual instinct, not being able to act with energy either for the safety or the ruin of the machine, is incapable of producing those salutary movements which determine the secretions and excretions which would be necessary either to overcome the hostile power or to expel it. Such is the chronic condition.

2057. *Third Law*.—The action of the sensual instinct usually begins with a state of unrest, because the movements which it produces not being comprised in feeling, it does not at the first instant know what movements will increase the state of pleasure and diminish that of pain, and therefore, in a state of uncertainty, it tries all paths before deciding upon a particular direction. Inasmuch as during this uncertainty the sensual activity presses from all sides, there arises that disquiet which indicates a need to act without being able at once to satisfy it.

2058. *Fourth Law*.—Among all the states possible to it the sensual instinct always preserves that which it finds most pleasurable.

Hence, if action costs it so much labour and discomfort that inaction is a state less uncomfortable, it ceases to act altogether. From this condition there arise many most important consequences, some of which are :

1° That, in proportion to the greatness of the impulse, that is, to the intensity of the sensation, is the difficulty of not acting. In other words, the greater the impulse, the more pleasant or less painful and uncomfortable is action as compared with inaction, other things being supposed equal ;

2° That, since the intensity of sensation is diminished by the *passive habit*, this diminishes the impetus of the sensual instinct, whereas the *active habit* facilitates its movement and thus increases it ;

3° That, since the force with which the sensual instinct acts does not depend solely on the intensity of the sension, but on the relative degree of pleasure which it feels in acting, its effort to act may be diminished by all those causes that render action less pleasant or more laborious to it. This in part explains the *diseased capacity*, or the power which a diseased animal has of enduring remedies in doses which it would be unable to endure if it were in a state of health;

4° That the *quantity of movement* which the sensual instinct really produces depends in great measure on the organization, which either places obstacles in its way and neutralizes its forces, or else lends itself to the propagation of motion, by means of the disposition, the mobile form, or the degree of life of the molecules;

2059. 5° That when the organization, being thrown out of order, places the sensual instinct in such a wretched condition that it cannot perform any sort of movement that is not more painful and disagreeable to it than entire cessation from action, then it does cease to act, in other words, the animal dies a kind of spontaneous death.—In this case the organization is not so injured that it could not lend itself to receive feeling; but the sensual instinct no longer applies itself to produce in it the excitatory movements necessary for the preservation of the organism itself, which accordingly is soon impaired in such a way as to become unfit for excited, individual life.

2060. We may, therefore, conceive four principles of death: (1) the rational principle, seized by an extremely painful affection, and, as a consequence, withdrawing all the forces of the vital instinct, so that although at the first instant there is no disorganization, yet this soon follows; (2) matter disorganized by external violence and, therefore, withdrawing itself from the action of the vital instinct; (3) the sensual instinct preferring to abstain from action because all action would be more disagreeable than inaction, and ceasing to produce those movements which are necessary to the maintenance of the organization itself (691);

(4) the sensual instinct causing some movement so sudden as to break up the organization.

2061. *Fifth Law*.—When none of those causes are present which make the sensual instinct refuse to produce movements, these increase and diminish according as the sensations are greater or less, and either do so throughout the whole machine, or else to a much greater degree in certain localities, according as the sensations are local and the sensual instinct finds one thing or another more congenial to what it is in search of, the pleasant state.

This accounts for local inflammations and other phenomena to which we shall recur, after we have considered the third element of the fundamental feeling, unity and harmony.

ARTICLE IX. (*Continuation.*)

Marks that distinguish Original from Secondary Sensations.

2062. Let us return now to the distinction between original and secondary sensations.

We have placed the mark of original sensations in this, that the vital instinct which produces them is not yet modified by the action and products of the sensual instinct, so that these sensations are the effects of the vital instinct in its natural state.

2063. And, indeed, the sensual instinct, when once aroused by the original sensations, produces by its action what may almost be called new powers, viz., *habit, retention, affection, presentiment* or animal expectation, which is an affection resulting from several successive feelings united by virtue of the synthetic force, as we have explained in the *Anthropology*. All these powers are so many acquired activities, in fact, so many modifications of, and additions to, the original faculties of the animal.

2064. The *original sensations*, therefore, are those which are produced by the *original excitatory movements*, in other words, by movements not produced by previous sensations, but by external stimuli and connatural internal stimuli.

Another mark of the original sensations is that they are *singular*. The effect of several simultaneous original sensations fusing themselves into a single *affection* is already a product of original sensations, and is not itself original.

ARTICLE X. (*Continuation.*)

We must not confound with the Original Sensations those changes of which the Fundamental Feeling of Continuity is susceptible.

2065. The *original sensations* must not be confounded with the changes that may arise in the fundamental feeling of continuity; the former belong to the feeling of excitation.

The fundamental feeling of continuity may be modified, either because new molecules are added to the felt extended, or because old molecules detach themselves from it.

In the addition of new molecules the following cases are conceivable :

1^o That the new molecules already have an organization similar to that of the living body with which they unite.—This is the case when the blood of one individual is transfused into another, when a lost nose is restored, when after amputations the wounds are covered with the flaps formed of the integuments, &c.

In all these additions of molecules we must refrain from considering the accompanying painful or pleasant feelings produced by the excitatory movements, and merely consider the action of the vital instinct which projects the individuated feeling into the new particles. It is this action alone that belongs to the class of original alterations of the fundamental feeling of continuity of which we are speaking.

2066. The act which projects the continuous feeling into molecules when added and properly disposed is conceived as spontaneous to the vital instinct.

But since the conjunction cannot always be made perfectly (it is impossible, for example, in restoring a lost nose, to make the new part correspond so exactly to the part to which it is attached that vessel shall unite with

vessel, filament with filament, &c.), there comes in accidentally a complicated action on the part of the vital instinct, which supplies what is wanting to the perfect conjunction and continuity of the parts.

Supposing this case possible, the addition of similarly organized molecules will be beneficial or injurious to the zoetic course according as these molecules are superfluous for the needs of the machine, or take the place of missing molecules. Any superfluity, let us say, of blood, would alter the zoetic course in various ways; still these alterations do not affect continuity, but only excitation, which is thereby impeded or urged on to excess, and animal unity;

2° That the molecules are sufficiently organized to induce the vital instinct by its action to add to them that last modification which is necessary to enable them to enter into the life of the individual, as is the case with all digestible alimentary materials.

The function of nutrition is a series of successive actions performed by the vital and sensual instincts, and supplying an element in the zoetic course. When the organs are in a normal state and find suitable aliments, this whole series of actions on the part of the two instincts is natural and pleasant; but if there is any defect in the organs or in the quality and quantity of the aliments, if there are *unsuitable stimuli* which rebel against the dominion of the vital instinct, thus causing the conflict of pain and consequent movements, &c.; then alterations in the fundamental feeling of excitation follow. On the other hand, when the body has been fed, *the fundamental feeling of continuity* is changed. This change is due to the fact that some molecules have been added to the living *continuum*. This addition, again, is *beneficial* or *injurious* to the zoetic course, according as the molecules added take the place of others that contributed to the natural perfection of the machine, or are superabundant in their distribution. For example, if there is an excess of any one kind of fluid, or if one solid develops too much in proportion to the others, there usually follows a retardation in the action of the organiza-

tion, and consequently in the briskness of the zoetic movements. Similarly, if the nutrition is imperfect, the secretions do not receive enough of the quality which renders them capable of life. The two previous effects disarrange the excitation and unity of the animal; the third alone is an evil inherent in the element of continuity, because the elements inserted in the body are not completely dominated by the vital instinct, and hence become *unsuitable stimuli*;

2067. 3° That a solid material not convertible into a fluid by the vital forces presents itself; then it is not assimilated to the living body.

Such material usually alters the zoetic course by the movement which it produces in the body by mechanical impulse;

2068. 4° That a material offers itself whose chemical forces act upon the living body with a force greater than that of the vital instinct, and tend to disorganize it by withdrawing it from the influence of this instinct. Such force is exerted more readily upon the fluids of the body than upon its solids, as we see in the case of poisons which decompose the blood.*

Poison, by acting upon the material forces of the living body, and giving to the molecules an organization, a position, an attitude different from that which the animal requires and which the vital instinct labours to give them, has the effect of destroying the vital organization. In this it cannot be prevented by the *vital instinct* alone, but may sometimes be overcome by the *sensual instinct* which comes to the aid of the vital. This is the case in fevers due to miasmas, in small-pox, and in all those maladies which show that some diseased material has in some way been introduced into the human body. This material after a

* M. Flandin, in a memoir on lead poisoning, read on the 20th January, 1844, before the Academy of Sciences in Paris, maintains that the locality of the action of metallic poisons must not be looked for in the blood, but in certain organs, the intestines, the lungs, and especially the liver, in which it ac-

cumulates, being carried there by the *Vena Porta*. A poison may not only be received into the stomach, but, when absorbed through the skin, may be carried into the paths of digestion by the sub-dermatic vessels. In this way M. Flandin explains the colics which persons who work in lead suffer from.

certain time ceases to exert any injurious effect, either because it is thrown out of the body by the excited actions of the sensual instinct in the form of exanthems or something of the kind, or because it is elaborated by the same excited actions, recomposed and rendered fit to fall under the dominion of life. It may even be neutralized by the action of other matter introduced into the body along with it, as happens when antidotes are applied, for example, when ammonia is given to counteract the poison of a viper. In these cases the zoetic course is subjected to great alterations; but during the struggle it is not any alteration in the feeling of continuity that so changes it; these changes in the zoetic course are due to the alteration in the fundamental feeling of excitation, and to partial sensations.

2069. As to the case of molecules of the living body separating themselves from it, this may take place,

1° By the various excretions,

2° By the violent detachment of a part.

2070. In either case the zoetic course is modified.

Many excretions are natural, the inevitable effects of movements belonging to the zoetic course itself, and do not cause painful sensations, but merely diminish the fundamental feeling of continuity.

But if the loss caused by these excretions is not repaired, the fundamental feeling of continuity cannot be diminished without diminishing that of excitation, because the lost molecules leave in the body a diminution of stimuli, and if the loss is excessive, it causes even an alteration in the organism of the solids and weakens them. If the fluids diminish too much, they can no longer with the same force stimulate the solid to those movements by which the functions are performed. The solids, besides not being sufficiently stimulated and excited, decay for want of nutrition, shrink and shrivel up: in a word, the organism necessary for the perfect performance of these functions is impaired.

Hence there is no reason why all the excretions and

subtractions from the body should not be called counter-stimulants, provided we do not form a fanciful concept of these counter-stimulants, as if they were positive forces opposed to those of the stimuli.

2071. Again, the loss of a limb, by diminishing the fundamental feeling of continuity, modifies the zoetic course; but this modification is due far less to the diminution of the felt-extended than to imperfection which remains in the organism to the detriment of the fundamental feeling of excitation.

ARTICLE XI. (*Continuation.*)

Varieties of the Original Sensions.

2072. So much being premised, we come now to consider the varieties of the primitive sensions, the complex of which, in its constant and typical part, constitutes, as we have said, the fundamental feeling of excitation. These sensions vary,

1° According to the various actions of the intellective principle, which acts on the animal part through affection and will.—It is affection chiefly that alters the fundamental feeling of excitation.

All rational affections whose object is the good, increase the fundamental feeling of excitation, while those whose object is the evil, diminish it.

2073. Anyone wishing to enter upon a more detailed investigation of this influence of the rational affections upon animality, must, first, determine the different kinds of excitation produced by a rational affection whose object is a physical good or evil, then those produced by an affection having for its object an intellectual good or evil, and, finally, those produced by an affection having for its object a moral good or evil.

After making this categorical distinction, he must distinguish the different kinds of rational affections that may take place in reference to the same categorical object, and find what kind of excitation is produced by each.

Furthermore, he must classify the good or evil objects contained in each category, and recognise and mark the exciting or depressing property of each class.

2074. We, leaving these researches to others, will merely observe that those rational affections which relate to the good may be called *stimulants*, while those that relate to the evil may be called *counter-stimulants*, if we mean by this word causes calculated directly to diminish the activity of the vital principle.

2° According to different organizations.—Since the excitation of the fundamental feeling depends upon the habitual internal movements of the body, it is obvious that the variety in the direction, velocity, number, &c., given to them by the organization, has an influence in changing the corresponding sensations, and thus in changing the whole zoetic course.

For example, nutritive substances change the zoetic course and likewise modify the organization. They must be examined at two different times, first, while the process of alimentation is going on, and then they are external stimuli, opportune, natural, pleasant; second, after they have been assimilated to the human body and animated, and then, being partly changed into fluids, they have become internal stimuli, and partly having become solids, they constitute that part of the organism upon which the stimulus chiefly acts.

2075. 3° According to the variety and quantity of the stimuli.—When the internal and external stimuli increase, the system of sensations and consequent movements must alter.

I say *alter* and not *increase*; because, although it is generally true that by the stimuli increasing up to a certain point the movements and sensations also increase, yet, when this point is passed, the excess of stimulation torpifies and stupefies the part affected, and makes it remain inactive. This furnishes a fresh reason for studying the opportuneness of stimuli and not merely their quantity.

2076. I believe it is for this reason that symptoms so

frequently deceive those physicians who interpret them with too much confidence, or isolatedly, or according to the poor rules of the system of quantity. How often does the prostration of the powers and the slackening of the pulse seem to indicate weakness, when perhaps they are merely signs of over-stimulation impeding the vital action and confining it to the centre!

This stupefaction of the fibre produced by over-stimulus appears to me to be a fact of the utmost importance for the medical art, considering the effects which may follow from it in the zoetic course. Indeed, if the accelerated movements within the body produce a corresponding increase of stimuli, and if these movements become slower when the organs stupefied by over-stimulation are incapable of increased action, we shall have two causes acting at once in opposite directions: we shall have an excess of stimulus torpifying the organs, and, in consequence of this torpor, a diminution of the reproduced stimulus, as if nature were trying to restore equilibrium. It will remain, therefore, to be seen whether in the sum of increased and diminished stimuli there is, on the whole, increase or diminution, that is, whether the internal stimuli can be diminished by the inaction of the organs more than the external stimuli whose excess has produced the torpor are increased. In this case the total effect of really stimulating substances might be a diminution of stimulus. This observation shows the difficulty of determining the true nature and effect of remedies. I find, for example, that digitalis diminishes the action of the heart, retards the circulation, disposes to sleep; but who can tell whether the effect of this vegetable is due to its being, as they say, a counter-stimulant, and not rather to its being an excessive stimulant? If we reflect that when the stomach is irritated this same remedy produces contrary effects, quickens the pulse, increases the secretions, and causes dizziness or heaviness in the head, may we not doubt that, when it finds greater vital force to resist it, and hence can no longer produce the effect of stupor, it then manifests its true property as a stimulant?

Again, if when given in large doses digitalis proves to be a stimulant, can we say for certain that it is itself that then produces that exaltation, that irritation which resists and hence excludes stupor? Whatever the truth may be with regard to these doubts, the general fact appears certain that a strong stimulus stupefies and weakens the vital movements, and these, being diminished, will in their turn diminish the reproduction or action of internal stimuli. Hence it will always remain an important subject of consideration for skilled physicians to strike the general balance, already alluded to, of the ultimate effect produced by these two series of excessive and defective stimuli. It will always be worth while in special cases to investigate the ratio in which increase in the first series causes diminution in the second; nor will it be at all absurd to conceive the possibility that a remedy which of its nature is stimulating should produce an actual diminution of stimulus. And all this will show that when a diminution of excitation takes place in a patient in consequence of a remedy, such diminution, taken by itself alone, is not an infallible proof that the remedy is of its nature counter-stimulant or depressing, and not stimulant, as is readily inferred by those who do not duly take into account the complicated series of causes and effects that are interwoven and reciprocally modify each other in the zoetic course.*

2077. From these remarks we may infer :

- 1° That the fundamental feeling of excitation may be normal and pleasant, or abnormal and painful ;
- 2° That the same feeling, whether normal or abnormal, may be greater or less according as the excitation is greater or less ;
- 3° That it is not the greater or less excitation that puts

* If we should wish to use the term *counter-stimulant*, not to signify the nature of the remedy and its direct effect, but to mark the complex effect which follows from it, and of which the remedy is only the occasion, the cause

being the vital condition of the patient, then the term *counter-stimulant* would receive a third and, indeed, improper meaning. At most it might be called an *indirect counter-stimulant*.

the animal in a state of health or sickness, but it is the normality or abnormality of the excitation ;

4° That, on the contrary, the prosperity of the animal is all the greater the stronger the excitation is, provided it be normal ;

5° That the maximum *measure* of excitation, in man, depends upon three causes : (1) the state of his mind, that is, the *action of the rational principle* ; (2) the *organization*, as normal or abnormal, more or less developed, more or less robust ; (3) the larger or smaller quantity of *external stimuli* and *internal stimuli* ;

6° That any modification that takes place in any one of these three causes, totally changes the zoetic course for better or worse.

2078. If excitation passes beyond its maximum measure, it becomes *inopportune*, and the maximum measure is relative to the three conditions indicated. Nevertheless, the fact that the quantity of excitation cannot constitute the characteristic of a disease appears from this, that in the most robust men diseases become more violent, whereas in weak men, of lax and lymphatic temperament, they assume a milder character. Yet who will say that the state of robustness is not better than the state of weakness? But inasmuch as the former of these two states is due to stronger and more excited vital actions, if the excitation departs from its normal form, the zoetic course, proceeding with the same impetus as before, rushes on to greater ruin. Hence robustness and greater excitation, things valuable in a state of health, become injurious in a state of disease, so much so, indeed, that physicians sometimes confound them with the disease itself. And it is very easy to do so, because that normal course which is more active produces greater stimuli, so that in the maladies with which robust persons are seized, there is almost always an excess of excitation. On the other hand, physicians are not wrong when they try in such cases to reduce in the machine its natural and proper forces, in order that they may not by their false direction serve to increase the malady.

Rasori recognises in epidemic fevers, small-pox, &c., a diseased irritating matter received into the human body, and, prescribing the depressing cure, tries to moderate it, because, he says, "The physician by this mode of cure does really nothing but temper the excitation and keep it within certain moderate limits during the whole time that elapses between the moment when the diseased matter begins to act as a stimulant and the moment when it ceases to act as such."* These words are clear enough, although to tell the truth, I do not see how they can be made to cohere with the system of the illustrious author, who in all cases of diseases due to over-excitation conceives the healing cure simply as a diminution of over-excitation, and admits no essential difference among the different counter-stimulants. It ought to follow from this, that the presence even of the stimulating diseased matter could be directly rendered innocuous by a dose of counter-stimulants having the same amount of effect in the opposite direction. But the fact is that the depressive cure, which is found so effective in the treatment of such diseases, seems to cause nothing (and this is confessed) but a less vehemence in the actions of the zoetic course, whereas the essence of the disease does not consist in that vehemence, but in the abnormality or disorder of the alternate movements, a disorder which becomes more ruinous when it shares in that natural impetuosity with which the vital movements and sensations are performed.

ARTICLE XII.

Varieties in the Faculty of Feeling, that is, of experiencing Sensations.

2079. From sensations let us now pass on to consider the faculty itself of sensation, and mark its varieties in relation to the zoetic course which is determined by them.

The fundamental feeling is an act, the first act of feeling; from this point of view it is not simply a *faculty*.

If we should try to conceive a faculty anterior to the

* *Storia della Febbre petecchiale di Genova negli anni 1799 e 1800, &c.*

fundamental feeling, the result would be merely an *ens rationis*, a fiction of our minds, because previous to its first act there exists nothing in the subject, not even a faculty taken in the active sense; before the fundamental feeling the animal itself does not exist. If, on the other hand, by "faculty of the fundamental feeling" we were to mean the activity which produces it, the vital instinct, then it would have no faculty prior to it, but we should be thinking that force in it which constitutes it—the substance of the soul.

By *faculty of feeling* I mean nothing of all this; I mean merely the active power of feeling in a different way from that which belongs to the fundamental feeling itself.

2080. By *sensation* I mean a kind of modification of the fundamental feeling, but not every modification. The modifications of the feeling of continuity are not sensations; however carefully we may attend to these we shall hardly succeed in observing them and thus forming a consciousness of them.

Again, the increase or diminution of the force of the vital instinct is not sensation, nor is it ever reached by the thought of man, who, therefore, remains unconscious of it.

In a word, *sensations* belong to the *feeling of excitation*, and are modifications of it.*

Sensitivity assumes different special forms. It also admits of different degrees in each form, and all this varies the condition of the animal, the character of the zoetic course.

On what, then, do the various specific forms and the various degrees of the animal sensitivity depend?

If we wish to find the ultimate or truly *formal* ground

* Excitation cannot take place except in a suitable organism, susceptible not only of *division* and *addition* of parts, which are properties of every corporeal continuous composed of different elements, but also of *instinctive movement* among its molecules while they remain in contact. This, as we have already indicated, is the reason why not all the parts of the body are *sensitive*, although all probably are *felt*. For example, the epidermis, which may very well be felt

as a term of our fundamental feeling, produces no sensation under an external stimulus, because it is devoid of nerves and vessels. This, in a word, is the reason why only the nerves, properly speaking, show themselves sensitive, being the only parts which have the organization necessary, both, for being animated and immovably felt, and for receiving excitatory movements and, hence, sensations.

of these wonderful varieties of kind and degree, we must resort in thought to the inmost nature of the fundamental feeling whose modifications the sensations are. Indeed, the ground of the modifications of which any subject is susceptible must necessarily lie in the nature of that subject ; for the expression " modification of a subject " means " the subject itself existing in various modes and preserving its identity in them all." And if we should wish to go further and ask why the identical subject can exist in different modes, we could find no other reason except that " such is its nature."

If we knew positively the nature of a subject, we should be able also to tell *à priori* all the modifications of which it was susceptible, in other words, to deduce them from the concept of its nature. But the nature of the fundamental feeling is not known to us in its own self, as we may readily see by reflecting that the fundamental feeling of continuity altogether eludes our intellective attention. Now, excitation is only an act of the feeling of continuity. Since, therefore, the feeling of continuity lies beyond the reach of our consciousness, it follows that the nature of the feeling of excitation is also unknown to us, and we can only infer its modes, forms and grades, that is, deduce them in an *à posteriori* way, from the experience of the sensations that are apt to fall within our consciousness.

But that all these different forms of feeling are due to the inmost nature of the sensitive principle, which is the substance of the soul, is a truth that we are obliged to affirm also from a consideration of the facts. Indeed, it is a fact that the same identical feeling has various modes of being ; it is another fact that these modes change without the feeling losing its identity ; it is a third fact that what is called sensation is only a mode of our fundamental feeling ; it is a fourth fact that in sensation there is an element of passivity, whose subject is the sensitive principle ; it is a fifth fact that there is also an element of activity in it, whose subject is likewise the same sensitive principle. It follows that the various forms of sen-

sion depend upon the special nature of the passivity and activity of this principle. Now a principle virtually contains all the acts and modes of which it is susceptible; therefore, in the sensitive principle are virtually contained all the different forms of sensations. These are not created fresh when they come into our consciousness; they are simply, if I may use the word, *externalized*, they pass from implicitness to explicitness; feeling does not change the being, but merely the mode of the being.

2081. It remains to be seen what are the occasions and conditions which make it possible for sensation to unfold itself.

The fact which we must keep before our minds, when reduced to a general formula, is this: "Feeling places itself in the most pleasant attitude possible to it."

But then what is it that sets a limit to its power of placing itself in various attitudes?—We must still reply as before: "The particular nature of the fundamental feeling." *A priori* we cannot say anything more. All that we can do further is to resort to experience in order, in some way, to discover this limit, and also to ascertain what, under given conditions, is the most pleasant attitude that feeling can assume.

Inasmuch as experience attests that the nature of the sensitive principle includes an element of passivity toward an extra-subjective being, it is plain that this extra-subjective being and its mode of action must be one of the conditions on which the most pleasant state of the animal depends.

Feeling must find one attitude more pleasant than another, according as the extra-subjective being acts on it in one way rather than another.

2082. Consequently there is nothing absurd in the thought that the different *forms* of sensitivity depend upon the different organization of the organs, so that the reason why the eye is susceptible of coloured sensations, the ear of sonorous sensations, the nose of odorous sensations, the palate of saporous sensations, the stomach, intestines, &c., of their own special sensations, is simply because bodies act

differently on the several organs owing to the diversity of their respective organization ; although the sensitive principle, as far as itself is concerned, has the same act under all organizations. This receives confirmation from the fact observed by physiologists, that any nerve, when stimulated, yields only its own peculiar sensation. Thus the olfactory nerve gives no other sensation but that of smell, the optic nerve no other but that of colours, &c. Hence, if the sentient principle is excited by movements suitable to the olfactory nerve, it smells pleasant odours ; whereas if these movements attempt to disturb the natural excitation, there arises a conflict which manifests itself in unpleasant odours.* As for the sense of sight, its disagreeable sensation is obscuration of vision, or else dazzlement by excess of light.

2083. There is, therefore, no reason to doubt that wherever the proper nerves occurred, there the spirit would feel ; that it might see with its foot, if in the foot there were a nerve organized like the optic, or hear with its hand, if this contained an acoustic nerve, &c., or even that it might see with a hundred parts of the body, like the fabled Argus, if there were in it a hundred eyes. The same may be said of every other sensation ; every sensation is in one place rather than in another, in one only rather than in many, not on account of any difference of *sensitivity* or of power in the sentient principle, but on account of diversity in the organization, which obliges the sensitivity to determine itself in this way

* In a man who always smelt a disagreeable smell, Cullerier and Maignault observed the arachnoid membrane ossified in different parts, and suppurated cysts situated in the middle of the cerebral hemisphere. On the other hand, the rabbits in whom Valentin had cut asunder the olfactory nerves and ganglia continued to have an appetite for food as before, moved with the same agility, and followed the instincts of healthy animals ; moreover, during the operation they gave no signs of pain. In the same way, the optic nerve, when irritated or cut, is insensible to ordinary pain ; but the irri-

tation produces in it luminous and coloured sensations, which are obscured if the organ suffers. The fact that the sight is hardly susceptible to unpleasant sensations seems to me attributable to the extreme delicacy of its organization and the small power which the sensitive principle has of resisting its destruction ; hence, if any external agent stimulates it, it either receives the proper excitation or else begins to be disorganized. The same may be said of the acoustic nerve, although it does feel disagreeable and lacerating sounds, for example, those that are too acute, which disturb the natural excitation of this sensation.

rather than in that, according as it finds more pleasure in the one or in the other. And if an organ of a particular construction should happen to be wanting, the corresponding form of sension would likewise be wanting.* Morgagni, Fatner, Loder and Valentin tell us that they found no olfactory nerves in persons who had never had the sensation of smell.

2084. Now, it is certain that every special *form* or sensitivity has the power to change the series of vital actions which make up the zoetic course, inasmuch as to every kind of sension there corresponds a determinate kind of movements caused by the sensual instinct.

2085. Passing now to the different *grades* of sensitivity, we find the reason of this difference to consist, (1) in a particular disposition of the sentient principle; (2) in a particular disposition of the animate matter which determines this principle to assume one attitude rather than another.

2086. In regard to this particular disposition of the matter, experience teaches us that certain bodies have a finer texture and a more delicate organization than others; and persons whose body and organs are of a finer texture evidently possess a sensitivity more delicate, ready, keen and powerful than others.

2087. As regards the greater or less action of the sensitive principle, this is due to the different causes which we have indicated.

The vital instinct is dejected when the spirit [*animo*] is occupied with pain, and it is encouraged when the spirit is diffused in joy.

If the intellective principle is carried away by the contemplation of an object, the animality drops part of its activity, because the subject, being one and possessed only of a limited quantity of force, cannot employ any considerable portion of this force in intellective operations

* For the same reason, the better framed and developed an organ is, the more perfect are the corresponding sensations or feelings. There can be no

doubt that a greater development of the heart renders a man more capable of the feelings akin to benevolence, charity, &c.

without withdrawing it from the animal operations. Hence, if a person applies himself to serious study when his stomach is full, his digestion is interrupted; and this is usually the cause of the ailments from which literary men suffer.

But what chiefly contributes to increase or diminish the sensitivity is the sensual instinct, which has so great an influence on the vital instinct, being in turn influenced by it.

The sensitivity is increased by the sensual instinct,

1° Through the force of the active habit;

2° Through the action of the [sensual] retentive faculty.*

In virtue of that action, the pleasurable movements previously experienced, and of which the sentient principle has preserved the traces, are [through the imagination] roused up in it in an accumulated form; and this accumulation imparts to it a greater power to move the sensual instinct than would be possessed by a new actual pleasure taken by itself. This explains why an imagined pleasure often produces on man a greater impression than a real pleasure.

2088. The same principle affords us an explanation of many hedonic phenomena. Why does the greatest intensity of an expected pleasure occur in the moment when the pleasure begins, that is, in the moment in which the change is taking place, not when it has already taken place? In great measure for this reason, that the pleasure is bound up with the movement, and, therefore, in the initial act of movement the pleasure is actuated in a higher degree than after, when the movement is being gradually succeeded by

* Of the retentive faculty belonging to the sentient principle (*retentiva sensuale*), and of its mode of action, the Author has treated in his *Anthropology*. By means of it, in combination with other means—all equally within the sphere of sense alone—he has been enabled to account for all those operations whereby the brutes seem at first sight to act as intelligent or rational beings; which would imply the absurdity that they are not *things* but *persons*. Referring in particular to the

power exerted on the sensual instinct by the revival (through the imagination) of past pleasurable feelings, all fused into one, he says: "Hence the animal that receives a sensation previously experienced does not move merely in accordance with what is required by that sensation taken by itself, but it moves in accordance with what is required by the whole general feeling which that single sensation reproduces and renews to it." See *Anthropology*, 463-468.—TR.

rest. This, however, does not suffice to explain that greater intensity of delight which lies in the first act whereby a person enters into possession of a coveted pleasure. Such intensity is due to the expectation of the imagination, which springs from the impression retained of so many pleasant moments previously experienced, and throws the sensual instinct into an extraordinary orgasm, into a painful unrest, into an impatience for a repetition of that pleasure which in the apprehensive faculty has become the sum of all previous pleasures. Hence, in the first experiencing of the pleasure in question, the sensual instinct, already violently moved by the impression aforesaid, finds the delight greatest, not only on account of its greater avidity, but also on account of the satisfaction which follows the appeasing of its raging desire, an appeasing which is attained the moment it sees the desired pleasure free and open to it. Hence, when the rage of that craving has been so appeased, there remains the mere real pleasure, much less than it looked beforehand to the desire, and therefore less calculated to move the vital instinct.

2089. In the same way also we may explain that other phenomenon so happily expressed in the Sacred Writings: "Stolen waters are sweet and hidden bread is pleasant,"* and also indicated in the common proverb: "Want begets appetite." What is prohibited, or hard to attain, or long desired, renders the sensual instinct restless and more active, and keeps it, so to speak, in continual vibration. So also a pleasure which unexpectedly offers itself and is caught fugitively is—by the shortness of the time and the fear that the precious instant may escape unused—rendered more keen and intense, and receives a character altogether new and peculiar. The reason of this is that the sensual instinct, then unquiet and excited, provokes in the nervous fibres more rapid and violent twitches and movements; and it is chiefly to this greater rapidity that the intensity of sensation must be attributed.

* *Proverbs ix, 17.*

Thus it is observed that a man who is wholly abandoned to pleasures keeps his sensual instinct habitually in a state of tension, in expectation of their repetition, and his nerves themselves protruded toward all stimuli, in a kind of twitching and oscillation, by which he seeks to start and initiate the coveted and expected pleasures. At the same time it is a fact that the physical condition of these nerves shows them to be more obtuse than those of a self-containing man, both because nerves that are always tense are not susceptible of great movements, since this implies an alternation of slackening and tension, and because the novelty of the pleasure is now gone. But if real pleasure diminishes in the slave of voluptuous passions, the anguished craving increases. This craving has no end,* and ceaselessly seeks to stir up the sensual instinct; nevertheless it is always true that the state of the sensual instinct in the voluptuous man has greater mobility and activity, which render the vital instinct more active and ready to produce pleasant sensations.

2090. 3° Through the reproduction by the sensual instinct of abundant internal stimuli; the reason of which lies in the greater intensity of the sensations, and in the same causes that render the vital instinct more powerful. Hence,

(a) The greater the fundamental feeling of excitation, the greater the sensitivity, other things being equal. I say "other things being equal," because there might also be a greater resistance to external stimuli, owing to the compactness and hardness of the fibre; but if the stimulus overcomes this resistance, the result must be a pleasure greater than that produced in a body of softer fibre by a stimulus proportionately equal;

(b) If in any particular part of the body the sensual instinct accumulates a larger quantity of stimuli, or has a tendency so to accumulate them, the sensitivity corresponding to that place increases.†

* See *Society and its End*, Bk. I, chaps. xii-xxviii.

† Irritation of the brain enormously increases the sensitivity of the retina,

so that every ray of light becomes troublesome to it. The same happens in inflammation of the brain, until extravasation of the fluids takes place and

In this way we may explain how it is that by frequent use our senses become more acute and delicate, how, for example, the incisor of jewels renders his sight finer by exercising it. It seems that the seeing power of the eye is increased, not merely by the projection of the nervous extremities that go in search of the stimulus and present to it their papillæ in a more naked state, but also by an increase in the afflux of the blood, which, by stimulating the part, quickens it and renders it more sensitive. In fact, if the eye is used beyond a proper limit, inflammation sets in, which proves that there is an afflux of humours. Another proof of this afflux is that the parts of the body which are most used grow proportionately larger and more developed, because a greater amount of nourishment flows to them.

2091. If, however, the stimuli which the sensual instinct brings to special parts of the human body, either by their impetus, or excess, or an alteration in their composition, attack the organism and tend to destroy it, then a conflict sets in which makes the parts painful. The fundamental feeling of the part thus afflicted is not usually one of sharp pain if the obstruction of the organic process and the disorder of the internal movements do not go beyond a certain limit; and yet the painful sensitivity is great, a slight touch being enough to cause sharp pain.

And this is the case with inflammation. It increases the size of the part, which shows an afflux of humours; reddens it, which shows an afflux of blood; renders it painful to touch, if the inflammation is slight, and even

paralyzes its functions. The vital instinct in these cases is in violent movement, having to sustain a conflict against the troublesome stimuli. Its increased activity is what augments that tremor of the optic nerve which occasions the sensation. When the increase of activity arises in the vital instinct from the conflict it has to sustain against a hostile stimulus, it sometimes happens that, while it is rendering more active the sensor nerves running to the spot where it is challenged to battle, it also renders their function irregular, which does not happen when its activity is increased by

a friendly cause. Thus it is that maniacs and hypochondriacs are subject to optical illusions, or rather to fantastic visions, or to a mixture of the two. The same may be said of the senses of hearing, smell, taste, touch, and, in general, of every kind of sensation, whether it consist of figurate or non-figurate feelings. Irritation of the brain, its inflammation or that of the meninges, as well as certain hypochondriac or maniac affections, increase excessively the sensitivity of the organs mentioned, and produce sensitive aberrations and illusions.

without being touched, if the inflammation is great, which shows, as we have said, the struggle that goes on between the vital instinct and the matter it finds there ill-disposed for its purposes.

That the matter in that part is ill-disposed, appears from the tendency of every inflammation to disorganize the inflamed part. The gorging of the vessels and the slackening of the motion of the humours prove the same thing. The blood seems to be driven into the last venous capillaries by the increased movement of the heart and the arteries; and the venous capillaries, being unable to give it course, must either become so weakened by over-distention as to extravasate some of it, or burst;* the very minute nerves must be pressed and irritated on all sides; the blood itself, heated by the orgasm of the arteries, and almost stagnant, tends to become disorganized, that is, to separate from the fibrine, which inclines to solidify and organize itself into new tissues and organs, while the clot and serum incline to change into pus.

2092. Brachet tells us that in 1811, on his returning to the hospital of Bicêtre, the warden of the surgery hall came to him and asked him to admire the wonderful increase of vision that had come to him that morning; he could see the smallest objects at an immense distance and yet complained of no discomfort. Five hours afterwards he began to feel a slight headache; a few hours later he was struck with lightning apoplexy, of which he died that night. A deposit of matter was found in his right optic thalamus, and this had inflamed and irritated that part of the brain which is the seat of vision. This great increase of sensitivity, therefore, came from the increased stimulation of the organ of vision, and probably also from the greater mobility which this organ acquired in consequence. A priest once came to me telling me that he felt as if he had become a new man, that his mind had become clear, his thoughts ready, and even his senses more acute in a wonderful way, and congratulated himself on his renewed

* Indeed, emissions of water take place in dropsy, and of blood in apoplexy, &c.

condition. I advised him to have himself well bled at once; he put this off for some days, and then went mad.

(c) The *sensual instinct* increases the sensitivity also by rendering the sensor fibres more mobile.—Whence comes this greater mobility? Of course, a more perfect organism, a greater delicacy of tissue, &c., must render them more mobile. But fibres that are similarly organized must likewise become more mobile and ready to give sensation, when they are subjected, as we have said, to a greater amount of internal and continual stimuli, just as a body which is pressed equally on all sides moves more easily with any increase of pressure on one of the sides, or as a balance moves as soon as the smallest weight destroys its perfect equilibrium. Besides this, the animal instinct is more wide-awake, more alert, more ready to act, when it feels itself excited from all sides, either pleasantly or unpleasantly; then the fibres preserve that continual oscillation, which is the same thing as a number of incipient sensations, all tending to display and vent themselves.

This cause, in connection with the preceding one, seems sufficient to account for the many phenomena arising from the different degrees and variations of the sensitivity as regards both pleasant and unpleasant sensations. For example, it seems to account for the fact that the special sensitivity of the taste varies, becoming sometimes more acute, sometimes more obtuse in the different inflammatory affections of the stomach. When this affection acts upon the pneumo-gastric nerves, as well as when it acts on the ganglionic nervous system, the organ of taste enters into a new condition, either because its internal organization is altered in some part, or because new internal stimuli are applied to it in a disorderly way, or else because it is rendered more mobile and oscillant. The modifications which the organ of taste undergoes from the uterine affections are still more wonderful, whether we consider the capricious tastes of young girls approaching the age of puberty, or of those whose menstruations are

difficult, or who suffer from other troubles, or those of women in the state of pregnancy.

The explanation of the increased activity of the fancy in sleep and in somnambulism must be traced to the same causes.

2093. (*d*) Finally, the degree of sensitivity depends in a very great measure upon whether the animal instinct lends its activity more or less, or not at all, to produce sension, or those spontaneous movements which are necessary to the production of sension. The *vital instinct* lends itself to the production of sension only in so far as its not lending itself would be more disagreeable. The *sensual instinct* follows the same law in regard to its movements; it does not lend itself to produce them except in so far as doing so is more pleasant for it than not doing so. This agrees with what we have said respecting the diseased capacity. It is well known that Giovanni Rasori administered a scruple of tartar emetic at a time, one drachm and several drachms in the course of twenty-four hours, and several ounces in the course of an illness, and yet it rarely caused vomiting, and then only a little, increased the stool little or nothing, while at the same time the perspirations were not more abundant than the nature and stage of the disease required. He made similar bold experiments with all kinds of antimonial preparations—emetics, nitre, purgatives, even the most drastic.

Here we seem to meet with a contradiction. This diseased capacity manifests itself only in those diseases that are called *sthenic*, because characterised by excess of stimulus. But, if in these diseases there is a greater amount of excitation, why do they show themselves almost insensible to the action of such strong remedies? To explain this fact, it seems to me that we must have recourse to the law indicated that “the animal instinct (vital or sensual) does not lend itself to action in consequence of stimuli except in so far as doing so is more pleasant than not doing so;” from which it follows that it is a mistake to suppose that “the quantity of action of the

animal instinct increases or diminishes in simple and direct proportion to the amount of stimulus applied to it."

2094. We must distinguish, (1) the quantity of the stimuli, (2) the quantity of the excitation belonging to the fundamental feeling, and (3) the quantity of the action belonging to the animal instinct both vital and sensual. Now what we have said is, that *the amount of action of the animal instinct* is not in proportion to the amount of the stimuli, but is determined by the above mentioned law which regulates its *activity*.

We may now ask other very important questions :

1° Does excitation keep in exact proportion to stimuli ? —I think we must again answer no, for the same reason.

2° Does the amount of action of the instinct, in so far as it produces sensation, or animal motion, hold an exact ratio to the quantity of excitation belonging to the fundamental feeling ?—And again I think we must answer in the negative ; because there is no reason why the animality might not find more pleasure, or, at least, less pain, in allowing itself to be excited, than in putting forth the effort necessary to withdraw itself from the stimulus ; and then, when there is question of passing to the action of the instinct which produces sensation or motion, find it more pleasant, or less troublesome to resist, and not lend itself to produce it.

2095. 3° Is the quantity of action of the vital instinct, or, which is the same thing, is the quantity of sensation or sensations produced by it, in exact proportion to the quantity of action of the sensual instinct, or, which is the same thing, to the amount of motion produced by it ?—And once more we must reply in the negative for a similar reason, although it is true that the sensation is the principle of a consequent animal movement.*

* We may add that several simultaneous sensations may impel the sensual instinct to contrary motions, in which case the movements prevent each other.

Similarly, if sensations, considered as impellent forces, collide only in part, the result must be a composition of motions similar to what takes place with me-

2096. Returning, therefore, to the general principle, we repeat that "the greater or less degree of sensitivity depends chiefly upon the laws of the *activity* of the animal instinct," and that the phenomena of sensitivity cannot be explained simply by a measuring of the external stimuli and forces which act upon the sensitive principle, as if that principle were solely passive and not also active and endowed with its own laws determining its action.

The more we meditate on this truth, the more we shall see that it lies at the bottom of all animal phenomena :

1° Why does a stronger sensation efface one that is less strong ; for example, why does the splendour of the sun prevent us from seeing the stars ?—This, of course, must in part be attributed to mechanico-animal action, which, by causing all the fibrils of the optic nerve to oscillate equally, excites a uniform sensation, in which the partial sensation of the stars is merged. But it does not fully explain how the light of the stars, which continues to strike certain fibrils of the retina, no longer causes any sensation in it owing to its finding it excited by the greater action of the sun. The right answer, therefore, seems rather to be that the fibrils struck by the light of the sun no longer receive the movement of the weak ray of the star, because the sensitive activity is pre-occupied in seconding the action of the greater stimulus. Still several causes co-operate to produce this phenomenon, among the rest, the mechanical law that a greater motion resists a very weak motion tending to modify it, since wherever there is a greater quantity of motion, there is also more force resisting change of direction and measure.

2097. 2° Why do the forces of the vital instinct resist the chemical, physical and mechanical forces that tend to dissolve the extremely complicated and corruptible machine of the human body ?—On account of the same intrinsic activity

chanical forces when several of them are applied simultaneously in different directions to the same body. [Rosmini seems never to have heard of the works of Herbart, who devoted so much atten-

tion to the subject of colliding sensations, or, as he incorrectly called them, ideas. If we use the correct term and adhere to its proper meaning, we may render the subject a very fertile one.—T.R.]

of the soul. By means of it the animal instinct curbs the action of the gastric juices, using them to dissolve food, and probably preventing their dissolvent action from injuring the stomach. On the other hand, it seems unquestionable that in a corpse the stomach is sometimes found digested immediately after death by the action of these juices, when they are no longer resisted by the activity of the vital principle.*

* See the cases in Giovanni Rasori's *Teoria della Flogosi*, Bk. II, chap. xxi. Many others might be cited.

CHAPTER XV.

DIGRESSION ON THE IMPORTANCE AND DIFFICULTY OF
COMPOSING A NEW TREATISE ON THE ART OF EX-
PERIMENTING IN MEDICINE.

Ἡ μὲν πεῖρα σφαλερὴ, ἡ δὲ κρίσις χαλεπή.

2098. Here I would ask the reader to allow me as a conclusion from all that has been said, and, as it were, by way of repose, to utter a wish. It is that some wise physician would undertake to compose a new *Theory of the Art of Experimenting in Medicine*. If what, after the preceding reflections, seems to me true be really true, then the treatises hitherto published on this important subject must appear insufficient.

The *Art of Experimenting* is the principal part of *Medical Logic*, and upon this art depends the true progress of medicine, which, without it, can only lose itself beyond recovery, and tumble out of one gratuitous and cruel theory into another theory equally gratuitous and perhaps more cruel still.

What considerations, I shall be asked, do you think the man who should undertake the labour of this noble work, ought to keep before his eyes?—Let me answer this question.

ARTICLE I.

Reconciliation between Empirical and Rational Physicians desirable.

2099. I should desire his first and preliminary object to be to remove the prevalent apparent discord of opinions, by doing away with the ambiguities of speech. The learned oppose each other with great detriment to their

art, when, instead of trying to understand each other, they waste time and words in contradicting each other. For example, if the two sects of *Empiricists* and *Rationalists* defined their meaning in a reasonable way, they would soon come to an agreement.

2100. Let us lay down these definitions :

Empirical Physicians are those who maintain that remedies ought to be applied solely by the rule of similar cases phenomenally considered.

Rational Physicians are those who maintain that remedies ought to be applied by the rule of similar cases, not as phenomenally considered, but as considered in their interior efficient causes, which do not come within experience, but yet are inferred from data of experience.

2101. From these definitions there follow these consequences :

1° The *Empirical* physicians do not exclude reasoning, as they are falsely accused of doing, but merely restrict it to determining, by means of phenomena coming within experience, what are similar cases.

2° The *Rational* physicians do not exclude experience, as they are falsely accused of doing, but merely wish that experience should be used to bring out, by means of reasoning, the internal constitution of the disease in question, and hence its interior causes which externally produce its symptoms.

When the two sects are thus defined and freed from the unjust accusations which they bring against each other, the mistake of each, if mistake there be, is much diminished, and the two are thereby brought much nearer each other.

At all events the *Empirics* will cease to be confounded with *quacks* ; for the Empiric is not necessarily a quack. On the contrary, in order to execute what he proposes, "to cure according to the rule of similar cases phenomenally considered," he requires immense knowledge and endless study. Indeed, is it an easy thing to determine what are the truly similar cases phenomenally considered ?

Is it a brief task to collect all the diseased phenomena and to classify them according to their greater or less similarity? Does it require slight sagacity to distinguish the cases that are similar in their specific essence from those that are similar merely in accessories and accidents? or to discover that one relation of similarity has the greatest importance, and the other very little? to seize the degrees of similarities and of their importance as marks of particular diseases? Does it not require infinite discernment and perseverance of observation to attempt a classification on this basis? And then it remains to classify in the same manner the different courses and terminations of diseases in different climates, temperaments and the like. Moreover, in accordance with this method, one must continually argue *a juvantibus et lædentibus*, in order to discover in each case the corresponding efficacy of remedies, the proper doses, and the manner of administering them. Let quacks, therefore, be separated from true Empirics, and then physicians will more readily understand one another.

2102. After these separations, to what does the defect of the two sects alluded to amount?—Not to the circumstance of the one having too little science and the other too much, but simply to an arbitrary restriction which each places on its own method. Hence everything ought to tend to show each of them that it gratuitously limits and renders more difficult of attainment than is necessary the aim which it desires to reach, namely, a true medical science. We should then no longer have empiric and rational, but *reasonable* physicians. And these would do two things: 1° They would collect and meditate upon all the phenomena, as the Empirics now purpose to do, classifying them according to their characteristic resemblances; 2° They would not refuse to investigate the internal diseased condition by means of reasoning, as the Rationals now propose to do, but would simply insist on the inductions being rigorously logical. The question at issue would no longer turn upon method, which would be one and perfect, but upon the correct application of

method. It would no longer be said : " Similar cases are of no value," but " These cases are not similar, or have not a characteristic, essential and specific similarity, but only an accidental one." It would no longer be said : " It is vain to inquire into the internal cause of a disease," but, " The induction whereby you determine this internal cause will not bear the test of logic, or has no more than so many degrees of probability; hence you must be on your guard, and calculate also the degrees of probability that militate against the certainty of the cause you assign." These questions are no longer vague. Here one confines oneself strictly to the domain of science, and thus the progress of the art is assured.

ARTICLE II.

Principal Parts of a new Treatise on the Art of Experimenting in Medicine.

2103. The " New Treatise on Experiment in Medicine " ought, then,

1° To determine what are the data furnished by sensible experience, and point out the ways of experimenting in order to find them, and the ways of classifying them ;

2° To determine the *rules* for drawing logical inductions from those data, and the conclusive force of each of these rules, and to classify these same inductions.

2104. The working out of these two parts of the treatise will naturally bring to light the difficulties which occur both in making experiments and in drawing correct inferences from them, and, therefore, care ought to be taken in them to call special attention to the illusions, errors, and false reasonings, by which the experimenter or the reasoner may be led astray.

With this last view, the wise writer whose appearance I would hail with joy, ought to show how complicated the human machine is, and how numerous are the active principles and sublime laws that modify it; how reciprocally active are the changes that take place in it, and how few,

comparatively speaking, are the data furnished to us by experience. If the so-called *problem of three bodies* is so difficult to solve in astronomical mathematics, because it has to take account of the reciprocal, though uniform, action of the sun, the earth and the moon, how much greater will be the difficulty when the bodies influencing each other are innumerable and continually changing, the forces various, the movements complicated and always influencing each other, as happens in the case of the human body? This exposition would lead to the conclusion "that the attempt to discover by direct experiment or by induction all the internal facts which determine the sanitary condition of the living body, to foretell the issue of a disease, and to modify it for certain in the direction of health by the application of remedies, is a task not to be jested with, but one altogether beyond human power."

2105. The student of the medical art, therefore, may place two aims before him : 1° To come to a clear understanding with regard to the positive state of the body from what he knows of the elements that constitute it; and this is a most difficult task; 2° To make use of complex rules of induction in order to discover the beneficial or injurious effect of remedies applied to a condition of body which is known imperfectly; and this is a matter of conjecture.

ARTICLE III.

Distinction between Analytic and Synthetic Medicine.

2106. These two great aims characterize two medical schools—distinguish *analytic* from *synthetic medicine*. Let us state the signification which we give to these two denominations.

2107. The Medical *Art* is one; it is the art of curing diseases. The Medical *Science* is the theory of this art.

But the physician who desires to attain the aim of his art may follow either of two paths. He may persuade himself that he can succeed in knowing how to cure diseases by studying what they are in themselves, and

from what internal forces and changes they result. This I call *analytic medicine*, because it undertakes to study diseases in their internal elements and to grasp their origin by investigating the complex of the forces, and their movements and the effects of these, in other words, the whole of the causes, to which the diseases are due. This is proceeding by way of analysis, in order afterwards to synthesise in the corresponding inductions.

On the other hand, the physician may persuade himself that he can succeed in knowing how to cure diseases by studying the *indications* which mark their progress toward better or worse, without taking particular care to find out positively how this happens. This I call *synthetic medicine*, because it seeks to know the total effect of remedies, although afterwards, by setting out with this knowledge, the same physician may analyze that total effect and use it in order to discover the internal elements from which it results.

Either method may certainly lead to the end proposed ; but still they ought to be united and made to cooperate for their common aim. In any case, it is an indispensable condition that the observed *facts* should be certain and precise, and the *inferences* rigorously drawn ; and these are two very difficult things.

2108. At all events, it is clear that *analytic medicine* takes a longer and more difficult way to reach its aim by logical inductions : and this ought to be shown clearly in the Treatise on Experimentation which we desire to see.

ARTICLE IV.

Analytic Medicine.—Extreme difficulty of drawing Inferences about it by sound Logic, on account of the Complication of the Zoetic Course.

2109. The work in question ought to show this extreme difficulty from several sides, and principally from these two:

1° The complicated character of the zoetic course and its perpetuation in ever new links, each of which is difficult to recognise ;

2.^o The agents that may modify the zoetic course.*

On each of these sources of difficulty we will say a few words in order to make our meaning clear.

The immense difficulty of the undertaking is seen when we observe that, 1.^o The *data of fact* furnished by experience are comparatively few, and 2.^o Innumerable the things which the physician ought to infer from these in order to know truly the condition of his patient. In truth, he ought to know :

(a) What link the zoetic chain has reached.

Now, from how many causes, each so difficult to seize with certainty, does every link of this chain result ?

In the first place, every link is composed of two elements, the *sensible* and the *mobile*. The sensible element is a complex of innumerable feelings, of which only a few come distinctly into consciousness, while many are merged in a single feeling, which is precisely what constitutes the sensible state of the animal. The mobile element likewise results from innumerable internal movements, and from their reciprocal action and fusion.

Moreover, in the sensible, as well as in the mobile element of any given link, one ought to note the order of the simultaneous movements. The reason is that the different systems of the human body act upon each other reciprocally, and with succession, so that, of the simultaneous movements that take place in the body some are the extremes of a longer, others of a shorter series of antecedent movements. Thus, for example, muscular movements are not the effect of the nervous movements that occur simultaneously with them, but of the nervous movements belonging to the previous link.

(b) Then the physician ought to know the links that have preceded the one reached at the time in question, or

* Besides these two sides, the writer of the *Treatise on Experiment* ought to apply himself to showing the difficulties that spring, 1.^o from the fact that there are but few things which act on or in the human body within the physician's

reach ; 2.^o that there are but few places in the human body to which it is possible to apply them, such places being almost nothing more than the *external* and *internal surfaces* of the body itself.

at least he ought to know the state of the vital and sensual instincts—a state which depends, 1° on the material forces and stimuli that act upon the organization, for example, the morbid matter which happens to have been introduced into the human body, &c.; 2° on the condition of the organization already more or less deranged; 3° on the other innumerable causes which impart to the animal instinct a greater or less degree of excitation, a greater or less aptitude for acting, in conformity with the above-mentioned law which determines the instinct to act or not to act, to act more or to act less, according as it finds more pleasure in the one thing or in the other.

(c) Likewise, he ought to know the links which will follow in the zoetic chain, but which it is impossible to foresee with certainty, on account of the accidental stimuli that present or withdraw themselves: or at least he ought to know the laws which determine the speciality of the chain in question. This, again, does not come under experience, but must be inferred from the few data of experience. I need not say, that to calculate the reciprocal actions of the various forces, every act of which has an intensity and a measure of its own, is a task beyond human intelligence.

(d) Finally, he ought to foresee how remedies will act. Now, how can he do this from conjectures so difficult?

We may, therefore, without rashness, conclude that it is impossible to base the healing art upon those internal causes of disease which are directly known, or inferred from the data of fact furnished by the observation of the human body.

2110. This difficulty of completely knowing the internal state of the diseased animal is seen still more clearly when we consider that all the rules of induction available for obtaining such knowledge are more or less fallacious. Let us examine a few of them:

1° *Symptoms*.—Here we must call to mind the many and weighty considerations that have been urged against *symptomatic medicine*. Certain it is, that the physicians

who have set out with Brown's principle (and these include nearly all modern ones), the principle,[¶] I mean, that the sanitary state of the human body depends solely upon an excess, or defect, or equilibrium of stimulus, confess that symptoms are altogether fallacious when any attempt is made to infer the sthenic or asthenic condition of the body from them.* Indeed, the very same diseases, with all the symptoms which characterize them, are attributed by these physicians sometimes to excess and sometimes to defect of stimulus. Hence they hold, for example, that there are dropsies due to excess, and others due to defect, of stimulus, and the same may be said of a large number of other diseases. Hence, even the species of a malady does not indicate with certainty its internal cause and nature.†

2° The rule *A juvantibus et lædentibus*.—This rule is certainly valuable, if it is applied to ascertain the effect of remedies; but if we try to use it in order to discover the internal causes of disease, the inner diseased condition, it likewise turns out to be fallacious. I am persuaded that two opposite remedies, the one a stimulant, the other a counter-stimulant, may in certain cases, owing to internal complications, produce the same effect. I have already observed, that if the stimulus is too great, it stupefies the fibre, and diminishes the amount of its action; and when this action is diminished, the internal movements and stimuli which it produces are also diminished. The effect, therefore, depends upon the proportion between the increase of the external and, so to speak, therapeutic stimulus, and the diminution of the internal physiological or pathological stimulus. If this diminution is greater than that increase, the total effect will be a diminution of stimulus; hence the remedy applied will appear to be a counter-

* The *fallacy*, of course, does not properly lie in the symptoms, but in those who draw from them inferences that are neither necessary nor logical.

† We are now speaking in conformity with the manner in which diseases have thus far been characterized, that is, from the effects that come under experience. If, on the other hand, we wished to

characterize diseases according to their internal cause and nature, this cause and nature would first have to be known with certainty. Now this is exactly what is uncertain, and what is in question, and the very thing, therefore, whose difficulty we must recognise in order to guard ourselves from illusion.

stimulant, when it is really a stimulant. The complication of the human machine is so great, that very much more frequently than is generally supposed these two opposite effects of partial increase and diminution of stimulus take place in it, giving a total effect which is equal only to the excess of the increase or the diminution.

2111. When any slackening in the course of the venous blood provokes yawning, there is a diminution of stimulus, and yet this diminution is followed by an effort spontaneously made by the animal to inhale a greater quantity of atmospheric air, and this effort, this greater quantity of air, is an increase of stimulus. The same may be said of all those causes which render the breathing more frequent and the respiration deeper for want of stimulus. Whether the quantity of air fit for respiration, or the blood, is diminished, or whether an excessive heat and rapidity in the circulation consume too much red blood, or whether, as in the moments immediately before death, life is felt to be escaping; in all these cases the diminution of stimulus is accompanied or directly followed by an increase of stimulus due to this very diminution. Here it is the sensual instinct that increases its action in an attempt to reproduce the stimuli that are withdrawn from it, a plain proof that this instinct does not act merely in virtue of, or in proportion to, the amount of internal and external material stimuli, but according to other laws of its own: it is not only passive, but also active.

2112. Although diseases may be cured by a stimulative treatment, there is not one of them in which the weakness is so great as not at the same time to have a partial increase of stimulus, which sometimes deceives physicians and makes them suppose the disease to be sthenic or inflammatory. To be convinced of this, it will suffice to read the two series of accounts of cases added by Rasori as an appendix to his *Teoria della Flogosi*. The one series consisted of maladies which, being supposed to be inflammatory, were by antiphlogistic treatment carried to a point of extreme gravity, but were finally cured by stimulant treat-

ment.* The second consisted of maladies likewise supposed to be inflammatory, but which issued in death, and yet the corpse showed no sign of inflammation. Here is a clear proof that a partial increase of stimuli takes place in every malady, without its being possible to infer with certainty from this that the malady is sthenic. Wherever we find acceleration of the pulse, or increase of heat, there is partially increased stimulus. Indeed, if there were nothing else, the mere increase of motion or heat is by itself a stimulus and a producer of internal stimuli. Wherever there is pain, there is unquestionably a partial increase of stimulus, because pain is a stimulus and a producer of stimuli through the excited action of the animal instinct. Wherever we find increase of secretions or excretions, there is partial stimulus, because increase of secretions and excretions shows an increase of activity in the secretory and excretory organs, and this implies increase of excitation and stimulus. Even where the secretions and excretions are less than they ought to be, there may be an increase of stimulus, as when excess of stimulus impedes the action of the organs by stupefying them, as it were. In a much higher degree may every abnormal and disordered secretion and excretion show a partial increase of stimulus, although accompanied by a simultaneous diminution of stimulus likewise partial. Muscular convulsions, drowsiness, lethargy, delirium, show a partial increase of the stimuli that excite the nerves and brain. In a word, there are very few morbid symptoms which do not exhibit a partial increase of stimulus and excitation.

Moreover, the same symptoms that would more naturally indicate weakness may be an indirect effect, if we may call it so, of a partial or total increase of stimulus and excitation, or they may be accompanied with symptoms that show a partial or total weakness and diminution of stimulus.

* We must, however, observe the fact that in all these cases the patients, before being treated with the stimulant cure, were for a long time treated with the counter-stimulant cure. In regard

to the difficulty of ascertaining the existence of internal inflammation, see Rasori's *Teoria della Flogosi*, Bk. II, chaps. iv, v.

Even in cases of inflammation, physicians are not yet fully agreed as to whether the labyrinth of gorged vessels is in a condition of weakness or in a condition of too great energy. Rasori confesses that there is a kind of weakness in the capillary venous envelope, the seat of inflammation, although he declares that this weakness has nothing to do with determining the method of treatment.* This distinction, we may remark, in passing, by itself shows the necessity of distinguishing more carefully than has hitherto been done, what precisely is the *weakness* meant by those physicians who try to reduce all medicine to a question of excess or defect of stimulus; since they themselves confess that not every weakness observable in the human body fits into their system. At all events, so much must at present be admitted, that in the inflamed capillary envelope there is some kind of weakness. Now this is the same thing as admitting that in one and the same part of the human body there may be simultaneously an element of weakness and an element of strength, or, more correctly, a debilitating and an exciting cause. There is no doubt that the afflux of blood to the inflamed part is an increase of stimulus applied thereto, although this cannot certainly be the first cause of the disease. And even if one will not recognise in the vessels gorged with blood any other cause of weakness than the mechanical action of the blood itself which forces itself into them and distends them too much, we will let this pass for a while. Still it will remain true that the same agent, viz., the blood, acts in the same part in two ways, by one of which it fatigues, distends to excess, weakens, and with the other stimulates, excites,

* "These capillaries, therefore, are undoubtedly in a state of weakness; but this weakness must be considered as merely a weakness in mechanical operation, such as might occur in even a lifeless membrane, which from being too much stretched and distended in all directions had lost part of its elasticity or power to resume its original condition by contraction. From this we mean to infer that this sort of weakness need not

be taken into account in considering the method of treatment, or lead us to believe that this method should be a stimulating or strengthening one." *Teoria della Flogosi*, Bk. II, chap. i.—It must here be observed that the limitation of the weakness of the inflamed capillary envelope to the mere mechanical action of the blood, seems a purely gratuitous assertion, as we shall show afterwards.

strengthens. Consequently the state of the part must not be determined solely by the element which weakens it, or solely by that which strengthens it, but by a calculation of the two simultaneous opposite and mixed elements.

2113. But is it proved that the weakness of the gorged vessels is due solely to the mechanical action of the fluid forced impetuously into them? I know of no conclusive proof of this. At the present day, the certainty seems to have been arrived at that the circulation does not depend solely upon the force of the heart, and that the blood-vessels have a contradistention of their own.* And although the venous system appears relatively passive and the arterial system relatively active, yet the tunics of the veins cannot be considered as altogether devoid of elastic and contradistensive power,† otherwise they would not be able to respond to stimuli any better than an inanimate substance. Granting, then, that there is a vital activity in the veins, as well as in the arteries, although greater in the latter than in the former, who will maintain it to be an impossibility that the same morbid cause, whatever it may be, which increases the action of the heart and arteries, is not also that which produces the contrary effect in the capillary veins by rendering them less resistant, more yielding and capable of being distended by the afflux of the blood? If this were so, the true efficient cause of the increased action of the heart and arteries, as well as the corresponding weakness of the venous capillaries, would have to be attributed to the modified action of the animal instinct, increased in the arteries, and diminished in the veins.

2114. It does even seem improbable that the venous

* Hastings, Wilson Philip, Treviranus, and others, having removed the heart of frogs and tied up all the large vessels, found that after this operation the blood continued to circulate for a longer or shorter time in the natatory membranes of these amphibia.—In 1820, Salandier gave utterance to the suspicion that the circulation goes on in the capillary vessels independently of

the action of the heart. (*Archives de découvertes et inventions nouvelles*, 1821, p. 211.—*Analyse des travaux de l'Académie des Sciences pour l'année 1820.*)

† It is worthy of note that, when the circulatory movement in the veins ceases, they gradually part with their light.

system and the arterial system stand in a kind of antagonism to each other, the latter being intended to impel the blood from the centre to the extremities, the former to carry it back from the extremities to the centre. In the same way an attempt has been made to show an antagonism between the white and the red capillary vessels, although I do not understand how Mr. Festler can ascribe to the white capillaries a greater contractive power than to the red, and to the red a greater expansive power than the white, since the contrary would rather seem to be the truth.* Indeed, contraction implies greater vital action, which certainly prevails in the red vessels, whereas expansion is not always the effect merely of the vitality, but sometimes also of weakness and passivity. Hence, for example, it is plain that the veins react less than the arteries upon the fluid which they receive, since the latter impel it with the aid of their contradistensive force. Now, is it altogether impossible, that the weakness itself, increased for whatever reason, in the vein system, the greater plasticity itself of the venous vessels, should cause a greater activity in the arterial system? Supposing that it did so, the weakness occurring in the vital force of the veins would be a cause of the diseased state in question, a cause prior to that of the excitation of the arteries, so that this excitation would turn out to be effect instead of cause. And that such may really be the case, I am led to believe by considering, that if we suppose a greater enlargement of the veins, and therefore a smaller resistance to the course of the blood, these veins would carry to the heart a greater abundance of this fluid, and hence would increase the stimulus and activity whereby the heart drives it through the arteries into the whole body, which otherwise would be insufficiently supplied with it. And if we suppose that the calibre of the arteries does not increase in the same proportion as that of the veins (since

* *Saggio di nuovi Principii fondamentali per la Fisiologia, Patologia e Terapia, dedotti dall' Economia de' vasi Capillari.* Di Francesco Saverio Festler, &c., Pt. I, sec. 4.

the arteries, being endowed with more life, resist material impulse more strongly, and under the action of the blood, considered as a stimulus, contract), it would follow that in the arteries the circulation would necessarily have to become rapid, in order that there might pass through them an amount of blood equal to that passing through the veins, this being a necessary condition of proper circulation. Moreover, since the vein-tree is much more capacious than the artery-tree, even if the vessels of both systems expanded to the same extent, the result ought still to be an acceleration of the blood in the arteries, otherwise these would not be able to give vent to all the quantity of blood which the veins would carry to the heart, without causing a stoppage in the course of this fluid. Now what is the cause that prevents the blood from stopping on its course? The true and first cause, as we have already pointed out, is the animal instinct, which, feeling itself uncomfortable, exerts itself to remove this discomfort—the same instinct which, in order to give a stronger impulse to the blood, can frame a yawn; which produces gasping and asthma; which in the various conditions of the atmospheric air can move the lungs so as to accelerate or retard respiration, according as it feels more at ease by rendering respiration at one time ampler and deeper and at other times longer, or shorter and quicker, more or less brisk, lighter or heavier, as the case may be. We should, therefore, have to resort to the vital activity as the first cause of the acceleration of the blood and the greater afflux of it to the veins, an activity which is roused by the weakness and relaxation that happens to befall them. Thus the whole question would be reduced to asking what is the first cause of this morbid relaxation of the veins; and that cause must undoubtedly be sought in some kind of irritation offensive to the vital instinct, and so obliging it to enter upon that conflict which we have described against the irritating cause. Here it is not necessary, nor does it fall within the limits of our purpose, to enter upon the investigation of this cause, which is certainly manifold. Let us rather return

to the phenomenon of inflammation, which seems as if it might derive some additional light from what has been said. Indeed the increased afflux of blood to the venous capillaries, and the increased movement of the arteries—both of them causes calculated, along with many others, to develop a greater amount of heat, and to impart to the blood a tendency to dissolve into its three principal elements, serum, clot and fibrine—seem sufficient to explain how in the venous capillary envelope there must necessarily occur gorging and almost stagnation of the blood, accompanied with swelling, heat and a tendency to suppuration. Especially must this be the case in places where the capillaries, whose calibre is very irregular, happen by some accident to be unusually large—a circumstance which Rasori thinks enough to account for the locality of inflammation*—and where, I would observe, for the reasons which I shall indicate further on, these capillaries, even if we suppose them to be comparatively large of their own nature, become still more enlarged by their morbid expansion, and hence grow weaker and more relaxed.

2115. Now what is the purpose of all this discourse? Merely to show that where there is found excessive stimulus, there may at the same time be excessive weakness, so that increased and diminished vital action go together, and the one is the occasion of the other. This I believe to be a universal law in all maladies, as I shall afterwards explain. And here we might extend very much further our description of the phenomena of weakness while the state of inflammation goes on. Indeed, if what we have said has made us discover weakness in the inflamed locality itself, and if we have attributed to the prostration of the veins the cause or occasion of the increased stimulus, how much more easy would it be to observe a weakness co-existing with inflammation, by considering the totality of the phenomena of a body suffering in consequence of some local inflammation?

2116. I am entirely in agreement with the many illus-

* *Teoria della Flogosi*, Bk. II, chap. xv.

trious physicians who have censured Brown for seeking to cure many inflammations, called by him *asthenic*, by the use of stimulants; but, while admitting this error in the method of treatment, I do not therefore hold myself bound to conclude that we must not look in inflammation for anything but excess of stimulus. The same physicians whom I have quoted are obliged to distinguish two kinds of weakness, the *pathological* and the *physiological*, as they call them; and they grant that the latter may coexist with excessive *pathological* strength. Now this is granting me all I claim, namely, that there are strength and weakness at the same time in the human body and in the same malady. Whether, moreover, the terms *physiological* and *pathological* are correct and are defined with sufficient clearness, is what I take the liberty of doubting. When I consider how our physicians came to form the concept of what they call pathological weakness, I find that they derived it from the action of remedies; but in regard to this matter several reflections present themselves to me.

1° To determine whether a remedy be stimulating or counter-stimulating, by the effects which it produces, one may try it either upon a healthy or upon a diseased body. In the former case, the inference from the healthy to the diseased body is open to grave exceptions; in the latter, one is supposed to know beforehand whether the diseased state is sthenic or asthenic, as the terms are, and this supposition easily leads to a vicious circle. Morbid sthenia or asthenia are defined according to the stimulating or counter-stimulating properties of the remedies, and at the same time these properties are attributed to the remedies according to the supposed sthenic or asthenic condition to the cure of which they contribute. It is to this state of things, in my opinion, that the great diversity of opinion that still prevails regarding the efficacy of certain remedies is due. But what I am more anxious to observe here (because all I want is to point out what ought to be the sane logic to apply to medicine) is,

2° That the effect of remedies may very well serve as a

sure guide in *synthetic medicine*, which, as we have seen, contents itself with discovering the beneficial or injurious effect of various remedies upon particular diseases by means of all their apparent symptoms and phenomena and undoubted characteristics. But I do not see how it can enable any one, at least by unquestionable inductions, to determine the internal causes of these maladies and the increase or decrease of the vital action in all its different complicated and sometimes opposite and antagonistic operations. In truth, it appears to me that any attempt to infer the causes of disease directly from the effects of remedies, and upon this inference alone to base the rules to be followed in the use of those remedies, is a method which very readily reduces science to all the narrowness of a one-sided system.

2117. These reflections are nevertheless not so much opposed as one might think to the method of treatment recommended by the illustrious founders of what has been called, I know not whether rightly or wrongly, the *new Italian Medical theory*, which, in any case, forms a great glory to Italy on account of the numerous truths which it contains. I think, for example, that it was a truth gained for science, when Tommasini, along with others, taught that the inflammatory process is but *one*, and that “whenever phlogosis, whether natural or morbid, appears, it is a process *independent* of the greater or less vigour of the system, and implies an increase of vegetation in the parts where it fixes itself, whatever may be the loss to the others.”*

This is sufficiently shown by a mere consideration of the gorging of any part with blood, because the blood which loiters in that part is cut off, as it were, from the total circulation, and no longer follows the current. The movement which it still retains has become merely its own; nevertheless it does not lose life until it arrives at suppuration. Before it dissolves and dies, therefore, it vegetates in a way that is independent and no longer in harmony with the universal vegetation of the body.†

* *Dell' Infiammazione e della Febbre continua*, Pt. I, chap. v.

† The relatively greater afflux of the blood to the capillary envelope, where

2118. Now, several questions present themselves here :

1° Ought a physician, in all cases, to direct his efforts to put a stop to local inflammation where it is manifest or is suspected to exist, neglecting altogether the general condition of the body ?

First of all, it must be observed that this question belongs to *synthetic*, and not to *analytic* medicine. It does not by itself tend to explain or analyze the dynamico-organic derangement due to the inflammatory process, or to reveal its causes ; but without regard to what this derangement may be, and to what may be the complex of the component elements and of the material and formal causes of the inflammation, it aims at discovering whether, in order to restore the body to health, it is better to combat the local inflammation, neglecting everything else, or to take into consideration also the general condition of the body.

Now, although we are now speaking of analytic medicine, still we may make a few reflections on this question.

2119. The inflammatory process leads naturally to suppuration, and therefore, if it is extensive, or affects, directly or indirectly, any organ necessary to life, it causes death. The extreme importance, therefore, of preventing this pro-

its course is slackened, certainly produces a continual vegetation in it, partly, I suppose, on account of the greater inertia of the small vessels, partly on account of the alteration of the blood, partly on account of the superabundance of blood which by its crowding prevents free passage, and partly on account of the fact that it adheres to the walls of the vessels. We cannot, moreover, suppose that the capillary vessels are so much affected by this stimulus as to be able to contract sufficiently to expel this blood, because the veins, especially when weakened by the diminished vital action, lack irritability sufficient for this. As to the opinion of Dr. John Thomson (*Lectures on Inflammation*, L. iii), that the action of the vessels in an inflamed part is much greater than that of the heart and the vessels of the other parts

of the body, it seems to me, 1° that the increased *action* must be taken merely to mean the effect of the greater *vegetation*, an effect which must be attributed more to gorging of the blood itself than to the activity of the vessels, which, if it existed, would not tend to hold it back, but to press it forward ; 2° that an increase of action must be admitted in the arteries which drive the blood into the veins till they themselves remain empty, as is seen in dead bodies, an action which may be the consequence of something else, and not a primitive one ; 3° that, finally, what makes the increased action appear is the circumstance that the process which goes on in the inflamed part is cut off from the rest, and is for this very reason a diseased condition, and, therefore, excessive, however small it may be.

cess—which, to use Tommasini's words, seems "the only dynamic means whereby the organic organization of the parts is impaired, corrupted and disnatured"—from reaching so sad an issue, in many cases makes it wise to neglect every other consideration, because the greater enemy must be overcome before the less.

2120. 2° But is there any way of preventing the result of an extensive and severe inflammation from being fatal, besides that of depriving the inflammatory process of its forces?

I am very far from being able to give an adequate reply to this question; but I would observe, that it belongs, like the other question, not to *analytic* but to *synthetic* medicine. It asks what is to be done for the health, not by what dynamic, organic, mechanical internal springs the restoration of health, in this case, is brought about.

Moreover, granting that the progress of the inflammation cannot be stopped by any antiphlogistic or other means, the inference that, therefore, there can be no other way of rendering it less hurtful, than that of depriving it of the forces with which it acts, is far from having all the logical cogency one could wish. In any case, this withdrawal of forces will be an excellent expedient for weakening the enemy and rendering it less destructive. So far, and no farther, synthetic medicine carries us.

But analytic medicine does not stop here. It seeks to draw inferences respecting the inmost nature of the disease, and nothing is more desirable provided those inferences are drawn according to the rules of an irrefragable logic. Herein, however, lies the difficulty.

The inference which it is pretended to draw from the fact that, when the inflammatory process is deprived of its forces, it becomes milder and incapable of producing the fatal result which it would otherwise threaten, is, that inflammation must be a disease due to excess of stimulus and strength.

But this either adds nothing to the previous conclusion

* *Dell' Infiammazione*, &c., Pt. I, chap. i.

of synthetic medicine, "that inflammation is successfully treated by withdrawing the forces by which its process is carried on," or else it is an illogical and erroneous inference.

It adds nothing, I mean, if by saying that the malady is due to excessive strength, nothing more is meant than that is cured by weakening remedies. On the other hand, the inference is illogical and erroneous if the denomination *excessive strength* is intended to describe the precise nature of the disease, since the animal body may be extremely weak and prostrated and yet inflamed. Hence, if the word *strength* is taken to mean what all men understand by it, it is not true that the patient who is afflicted with inflammation is strong and gifted with excess of vitality.

In order, therefore, to save analytic physicians from this absurdity, which they cannot mean, because they have before their eyes patients whose cases prove the contrary, we must give their statement a different signification from that which their words convey.

Here, again, we come upon the distinction already alluded to between *pathological* and *physiological* strength. At first sight, this appears to be one of those many distinctions that uselessly encumber and weigh down the sciences, and which might easily be avoided by the use of correct language such as is understood by the people, the only masters and legislators in the matter of language.

And yet this distinction is a real one, and it is seen to be based on nature as soon as we attend to the description and definition of it. How, then, shall we define this *pathological strength* or *weakness*, which seems as if it must be something different from what the generality of people mean by the terms strength and weakness?

Rasori describes it as a strength or weakness "correlative to the method of treatment, and so enabling us to judge whether this treatment ought to be stimulating, in other words, strengthening, or the contrary."* This is excellent; but it does not go beyond the limits of *synthetic medicine*. The description does not tell us that there is really weak-

* *Teoria della Flogosi*, Bk. III, chap. i.

ness or strength in the body, which would be the inference—rash inference, as we have seen (2109)—of analytic medicine; but it merely says that there is an enemy whose strength it were well to diminish. Now, was there ever a man who did not know that the forces of an enemy are always too great? Would it not have been enough to say that where there is an active enemy who cannot all at once be crushed, we must at least try to weaken him? This is logical, evident; but it arises, not from there being an excess of force in the human body, but from there being hostile forces in it. We must, therefore, conclude that the evil is due, not to an excess of robustness or strength, but to the abnormality of it; and abnormality, however small it may be, is always an excess. The truth is, it has never yet been proved, as we have already remarked, that inflammation is due to an absolutely excessive activity of the heart and arteries, rather than to an activity excessive relatively to the relaxation of the capillary veins, so that the weakness which has grown up in these may have determined the excessive activity of the heart and the arteries, and not *vice versa*. Such being the case, I maintain that it is possible to conceive another way of overcoming inflammation, namely, by restoring to the capillary envelope a sufficient force to cause the congested blood to re-enter the general circulation, and not carry on for itself an independent process of vegetation. I will make no reference here to the effects of cold applied to an inflamed part, nor do I mean to go at all into particulars. I will merely say, in general terms, that it is one thing to affirm that such a way is not known to exist, and another to affirm that it is one impossible to discover. Suppose that it were impossible to discover: this impossibility must be shown by arguments quite different from those supposed to be derived from the state of excessive stimulus; because this state would at once cease if the blood congested in the capillaries were forced on its way by means of an increase of vigour in the over-relaxed vessels.

2121. It may be replied: The expression *pathological*

strength or *weakness* is nevertheless correct, since it indicates at least that element which alone the physician has to deal with, and which, therefore, forms the basis of the malady so far as the method of treatment is concerned. I answer: If it were true that there were but one element to which the physician ought to confine his attention and direct his whole treatment, and if remedies had merely to be divided into two classes, the one called strengthening, the other, weakening, then the expression *pathological strength* or *weakness* would certainly acquire the advantage of *precision*, but it would not, at the same time, acquire that of *correctness*, because it would not designate what is commonly meant by *strength* or *weakness*.

2122. But, after all, is it true that the physician's attention ought to be restricted to so little? Is it true, for example, that he ought altogether to neglect what is called *physiological weakness* or *strength*? Indeed, if the word *pathological* signifies *morbid* or, at least, *relating to disease*, why ought we not to designate as *pathological* that weakness and prostration which accompanies inflammatory troubles, especially when the inflammatory process afflicts and depresses the nervous system? Is not this prostration the effect of the malady itself? Are there not very frequent cases admitted by all, in which the body is reduced to the greatest prostration, emaciation, pallor and collapse, and yet a part affected with inflammation flourishes more luxuriantly and vigorously than ever, just because, being as it were cut off from the unity of the animal, it has taken to performing certain functions of life all by itself? * Now, if *pathological weakness* indicates *morbid weakness*, what weakness is more morbid than that which goes so far as to weaken and emaciate the body to death?

2123. It will be rejoined: But there is no need to attend to this weakness in the mode of treatment.—My reply, again, is: The importance of combating the inflammatory process, when it threatens dissolution and ruin, is unde-

* Various cases are described by Tommasini, *Dell' Infiammazione*, &c., chap. iv.

niable; and this is certainly done to a certain extent when the strength of the enemy is lessened. At the same time, since, in the inflammatory process, we must recognize simultaneous weakness and strength, both of them relative and not absolute, we have no right to decide *à priori*, that there is no other way of restoring the equilibrium between the relatively excessive weakness of the veins, let us say, and the excessive strength, likewise relative, of the arteries. In any case, it is an altogether false principle, even in the modern system with which we are dealing, that, while applying the antiphlogistic method, the physician ought not to look, at least with the tail of his eye, to the general state of weakness in the body. Neither Rasori nor Tommasini carries matters to such an extreme. At the same time that they preach the antiphlogistic method, they admit that it is not "always sufficiently supported by the medical faculty in general." Hence, although they classify continuous nervous fever among inflammatory diseases, they admit that counter-stimulants must be used sparingly in it.* On this subject, Tommasini says: "Whether it be that the dark inflammatory process lays hold of parts of the nervous system that directly affect the movements of the heart, so that there is *danger in resorting to large depletions*, as would be done in the case of pleurisy; or that the diathesis is slight as in many cases of scarlet fever and other similar maladies which have a fixed period, the fact is that patients cannot endure large depletions, and in order to cure such diseases, mode and time must be carefully observed, as the illustrious Rasori wisely remarked."†

2124. This shows with sufficient plainness,

1° That the physician must not entirely and in every case lose sight of the general weakness of the body, and, therefore, that this may also be called *pathological*, if by that term we mean what ought to direct the physician in the application of remedies;

2° That if we wish to seize the inmost concept that directs the new medicine, we shall find that this system

* *Dell' Infiammazione*, &c., secs. 29, 30.

† *Ibid.* sec. 52.

does not admit one enemy only in the diseased body, in other words, weakness only, or strength only (although Tommasini seems sometimes expressly to teach this); but tries to overcome the stronger and more threatening of the two enemies, which in the majority of cases is inflammation, and therefore directs its chief attention to it. If, however, the general weakness should become equally or more threatening, attention must likewise be paid to it;

3° Finally, that the words *weakness*, *strength*, &c., belong to *analytic medicine*, and may very easily be abused, or used without any advantage to the art; whereas the terms *inflammation*, *phlogosis*, *antiphlogistic remedies*, &c., belong to *synthetic medicine*, and the use of them is, both, safe and necessary, because they are not meant to describe the internal causes of the disease, or to refer it to one simple cause; but merely designate the disease as it may be known by its phenomena, and the remedies as they appear from their effects as related to diseases so known and described.

2125. From all this we may conclude, that even the rule *a juvantibus et lædentibus* is excellent when it is used in order to arrive at inductions belonging to *synthetic medicine*, whereas it is extremely difficult, not to say, impossible, to draw from it with certainty those inductions which *analytical medicine* is in search of.

2126. I might go on and write a similar criticism of other very celebrated medical rules, and show in a similar way how hard it is to use them in order to build up a system of *analytic medicine*. But I prefer to show from another side the difficulty of drawing, with perfect logical accuracy, those inferences to which analytic medicine aspires, not indeed for the purpose of discouraging the cultivators of this science, but in order to caution them against the risk which they run of departing from rigorous logic in their reasonings, and so of arriving at nothing but errors and ambiguities.

ARTICLE V.

Syllogism of Analytic Medicine, and Syllogism of Synthetic Medicine.

2127. There is a syllogism of *synthetic medicine*, and there is a syllogism of *analytic medicine*.

The syllogism of synthetic medicine is this :

The phenomena (subjective and extra-subjective) which we know of this disease are such and such ;

But in the case of similar phenomena such and such method of treatment was found beneficial, and such and such another hurtful ;

Therefore, we must follow the first method and avoid the second.

2128. The syllogism of analytic medicine is this :

The internal and formal causes of the present disease are these or these ;

Such and such method of cure diminishes or destroys these causes ;

Therefore, such or such method is suitable for the treatment of the present disease.

2129. I say that in this latter syllogism everyone of the propositions is more difficult to ascertain than the corresponding proposition of the other.

The first proposition of the syllogism of synthetic medicine is simply the *observation* of phenomena.

The first proposition of the syllogism of analytic medicine is already a logical *inference* from phenomena supposed to have been previously observed and collected. Indeed, the internal and formal causes of a disease cannot otherwise be inferred than by reasoning from phenomena, the only thing we know directly through perception.

Now to infer by reasoning the internal and formal causes of a disease from the phenomena which it presents to observation is by itself a task of immense difficulty and uncertainty, and one that is avoided by synthetic medicine. It is in large measure the difficulty of which we have spoken, and is due principally to the complication of the

zoetic course, of which we ought first to know the theory completely, then determine by means of this knowledge the abnormal deviations from it, and their characteristics, and, finally, make sure that these deviations really occur in the particular case presented for treatment.

2130. The second proposition of the syllogism of analytic medicine is likewise an inference drawn, by means of reasoning, from observations supposed to have been previously made. Here, again, the whole labour of collecting, verifying, and classifying observations is common to the two systems of medicine; but the analytic has, over and above this, a burden infinitely more heavy, namely, that of determining the action of remedies, not with immediate relation to the disease, but with relation to its internal and formal causes, in other words, of determining the method of treatment, not by observing whether it brings the patient nearer to a state of health or carries him farther away from it, but by observing whether the internal action of this method restores the supposed causes of health and removes those of disease, or does the contrary.

Herein lies an immense difficulty which ought to be minutely and positively unfolded in all its parts in a *Treatise on Experiment in Medicine*, and which, in this place, we can consider only in a very partial way, giving merely a slight hint of what we should desire to see done by others.

We say, therefore, that every effect produced in the human body must be considered as the product, not of the agent alone, but of two concurrent causes, the *agent* and the *reagent*. Here *action* is continually accompanied by *reaction*, and the consequent state of the body is merely the result of this action and its accompanying reaction.

Now, if the *action* is correlative to the activity of the agent, the *reaction* is correlative to the activity* of the patient.

Hence the true effect of an agent varies and sometimes

* *Activity*, with us, as we have elsewhere said, has a most extensive meaning; it occurs even in what is passive.

becomes exactly the opposite, *i.e.*, when the state of the reagent changes and assumes an opposite attitude. It follows that we cannot foretell the true effect which a remedy applied to the human body will produce, by an inference from its causes, unless we know completely the state of the human body to which it is applied, which body in the present case is precisely the being that has to react. This undeniable principle is known and generally admitted. Still, those who have recognized the extreme importance which it has in itself, have never had sufficient logic to enable them to proceed with the deliberation necessary for the inferences which they wanted to draw from it. Who knew it better, for example, than the illustrious Rasori, who made the fact of *morbid capacity* so famous as almost to elevate it into the supreme rule of medicine? But it is one thing to know a truth in its empty generality, another to be able to recognize it in act, in the concrete. Did he not give himself up too much to a confidence that he could determine without much difficulty the entire state and the cause of disease, contenting himself with two simple words, such as "excess of stimulus" and "defect of stimulus," after all, are? Who attributed more importance to the same principle than Hahnemann, who conceived the idea of, first of all, ascertaining the effect of remedies upon the healthy body? But yet with what hastiness did he draw the general conclusion that in the diseased body the same agent would always produce exactly the contrary effect, basing the whole science of medicine upon an inference so rash, and impossible to prove on account of its vastness and ambiguity? What these physicians, therefore, did not realize to themselves was the extreme difficulty of drawing correct inferences from the principle of which we are speaking.

2131. And, indeed, as soon as any one tries to estimate the effect of remedies administered to a patient, by calculating on the one hand the state of the reacting body, and on the other the efficacy of the acting remedy, he is at once met by the difficulty of ascertaining the exact state of the

body which has to react, and thus there return into the field the whole complication and all the recondite laws of the zoetic course as well as of the continually changing springs and forces which produce it.

Then comes the difficulty of knowing the agent and its efficacy, which is certainly constant, as considered by itself, but is not on that account any less difficult to discover in its correlation with the effect. Here are some of the circumstances out of many that might be discussed in the *Treatise on Experiment in Medicine*.

1° When the *agent* is complex, that is, resulting from several different elements and forces, and so likewise when the *reagent* is complex, likewise resulting from several elements susceptible of different passions and reactions, then it becomes a most difficult thing, and often a most fallacious one, to foretell its true effect, which may not only be different from what is predicted, and from what the agent considered by itself alone would indicate, but may even be contrary.

EXAMPLES.—*Complexity of the reagent*.—Cold lowers the fluid contained in the thermometer. And yet when the thermometer is dipped in cold water, in the first instant the fluid rises, and when it is dipped in boiling water, the fluid falls. Whence these contrary effects so difficult to foresee, if experience did not show them to us? From the fact, of course, that what suffers and reacts, viz., the thermometer containing the fluid, is not simple, but is composed of two parts, (1) the tube, (2) the fluid. Now when the tube widens, the fluid must fall, and when it narrows the fluid must rise. The action, therefore, of cold and heat is communicated in the first instant to the tube, and does not penetrate to the fluid until some seconds afterwards. This accounts for the phenomena in question.

Here we may observe a kind of opposition, which looks like antagonism without really being so, between the tube and the fluid contained in it. When both are heated the tube widens and makes the fluid descend, while, at the same time, the fluid becoming rare tries to ascend. Of the

two contrary effects that which prevails is usually taken as the effect of the agent, and yet it is not so, it is merely the difference of two effects produced by the same agent.

Fire expands ; why, then, does it contract a ball of soft clay ? Because the ball of clay is composed chiefly of alumina and water. When the water expands into vapour, it allows the aluminous parts, no longer impeded in their attraction, to come closer to each other.

Complexity of the Agent.—The agent is complex when it results from substances of different properties, and, therefore, may produce an unexpected effect.

The agent may be simple as far as the nature of its substance is concerned, but the same substance may act with different forces.

If any one should ask what is the effect of air upon fire, what answer should we give him ?—It is plain that air produces on fire contrary effects, according as it acts with *chemical* or with *mechanical* forces. If it acts with chemical forces, it feeds it, by supplying it with hydrogen and oxygen ; if, on the contrary, it acts with mechanical forces, as an impetuous column of air does, it puts it out. A person, therefore, would be mistaken who should see in air only one of these two forces, and should decide that air always produces the same effect upon fire. Cold contracts bodies by withdrawing from them the caloric that keeps their molecules at a certain distance from each other. Still, water, which has been slowly contracting as the degree of cold increased, suddenly expands in the act of freezing. The same takes place with sulphur, iron and other metals, which expand when they pass by cooling from the liquid to the solid state.

Now, 1° almost every thing that the physician uses to act upon the human body is a complex, both, from the plurality of substances which go to compose it, and from the diversity of the mechanical and chemical forces with which it acts. 2° The living human body itself, which is what has to react, is even in a much higher degree a complex, not only on account of the variety of substances

which compose it, but also on account of the mechanical, physical, chemical and vital properties and forces which act in it simultaneously, and often in opposition to each other, and not only with difference of effects but even with real antagonism.

2132. The *Treatise on Experiment* desired by us ought to descend to particulars and lay bare all the different classes of illusions which may arise in consequence of the multiplicity of substances and forces in the agents (remedies, curative treatment), and in the reagent (the human body).

And this is not all. Even if the substance and the force of both the agent and the reagent were simple, we might still obtain from them now one effect, now one quite different, and now one altogether opposite, merely from a change in the circumstances and accidents in which the agent and the reagent happened to be. Let us say a few words on this point.

Vital Forces.—These, as we saw, produce a different effect according to the condition of the matter, of the organization, &c., in which they act.

They produce a different effect according as their action is considered as modifying the mechanical forces rather than the chemical forces, &c., or *vice-versâ*.

They produce a different effect according as their spontaneity is more or less roused, more or less disposed to act.

Chemical Forces.—Every chemical substance acts in a different way according as it has a given affinity or repugnance for the substance on which it does act.

It acts in a different way according to the proportions of the two or more substances that are mixed together, to the manner in which they are mixed, to the time, the surroundings, the forms, and to all those accidents of which chemists carefully take note.

It acts in a different way according as it is elementary, or composed of several elements whose substantial union gives them new properties.

Mechanical Forces.—The time, the velocity, the laws of the communication of motion, the form, the opposition of

forces, &c., are circumstances which may produce opposite and contrary effects.

A breath of air opens a door; a rifle ball perforates one without opening it. The force in the ball is greater, and yet it does not produce the effect of the air, because the velocity of the ball is so great as not to leave time for the movement to communicate itself to the whole of the door, but, before the communication takes place, produces the effect of detaching that little piece upon which it presses with such violence from the cohesion which kept it united with the rest of the board.

In a word, all the elements ought to be enumerated which can change the effect of the experiments, or even render it contrary, finally deducing as a corollary the well determined solution of the following problems:

“What logical inferences can be drawn from the effect of an experiment with perfect certainty, and what cannot?”

“What degree of probability may an inference drawn from the effect of an experiment have when certainty cannot be attained?”

ARTICLE VI.

Wisdom and Destinies of Synthetic Medicine.

2133. Synthetic medicine, therefore, is aided by those complex middle rules, which, as we saw (1686-1697), constitute the marvellous sagacity of prudent men; those rules which shorten the way to the solution of the most difficult and complicated problems. And this is likewise the path followed by the most celebrated physicians of all times, of those who at the bed side of the patient have shown the greatest sagacity and skill in combating diseases.

2134. The abandonment of these complex rules in order to confine one's attention to the analysis of the primitive elements forming the causes of diseases, and of their cure, has often been the ruin of the medical art, and the source of the most cruel sufferings and deaths to distressed humanity.

But if physicians would hold firmly and constantly to these same rules, and, by means of further and further observations, strive to secure more particular cognitions than have as yet been attained, medical science would find itself established on a more and more sure basis, and have before it a career of progress worthy of all praise. Thus, *synthetic medicine*, which must never be abandoned, will descend cautiously to analytic inferences—the only possible way of reconciling the two systems. In my opinion, analytic medicine can never aspire to walk alone. It must always lean upon synthetic medicine; it must, in fact, be its difficult, laborious but never fully born offspring. Such, I will venture to affirm, is the destiny of the healing art.

CHAPTER XVI.

RESUMPTION AND CONTINUATION OF THE APPLICATION OF
THE THEORY TO EXPLAIN THE ZOETIC COURSE.

ARTICLE I.

Definition and Description of Secondary Sensions.

2135. Let us now return to our subject from which we have digressed. The digression, I hope, will have cleared the way for the rest of the argument with which we were dealing.

We were trying to show the incredible variety and multiplicity of the ways followed by the zoetic course, and its extreme mobility even by the slightest causes that make it alter its direction. For this purpose, we explained the original varieties of the fundamental feeling of continuity and of the vital instinct which produces it, the varieties of the original and natural stimuli and of the sensions which spring from them, as well as the varieties of the vital instinct itself which brings the fundamental feeling of excitation into existence, and of the *sensitivity*, that is, the power which this same feeling has of becoming modified under the influence of new accidental stimuli, so as to give occasion to *partial sensions*, likewise accidental. The sensions which spring up as consequences of original stimuli, that is, stimuli given by nature and not produced by the animal instinct itself, were called by us *primitive sensions*; those produced in consequence of stimuli generated by the action of the instinct were called *secondary sensions*. Of these and their varieties we must now speak.

2136. In order to form a clear concept of these secondary

sensions, and to see how far they influence the zoetic course, we must direct our attention to the theory of the synthetic force of the animal, which we propounded in the *Anthropology*. It is this force, and no other, that causes these sensations, which succeed the first, to stir up in the human body new activities, and, so to speak, new powers, which change the zoetic course. The reason is that every association of sensations, figurate or not figurate, of images, of feelings, active* or passive, roused or re-roused, intellectual or corporeal, produces in the animality a new state, new activities, new movements. Associated sensations, more-

* Even before Hippocrates the instinct of the hippopotamus had been observed, which makes it roll itself upon sharp and edged bodies in order to open its veins, when gorged with too much blood. If we analyze this instinctive operation, we shall see at once that it is produced by the *synthetic* force of the animal, which force unites in a single affection, on the one hand, the sense of discomfort caused by the over-gorged veins, and the sense of pain due to the laceration of the veins (two passive feelings), and, on the other, the active feeling bound up with the movements which the animal makes in violently rolling and rubbing itself upon those uneven surfaces which tear open its veins. The affection arising from all these passive and active feelings determines the sensual instinct to produce them together, for the reason that having them together must be the state preferable to it. The discomfort of the blood-gorged veins, and the heated blood, form a feeling intolerable to the sensual instinct of this animal, which therefore tends to place its feeling in a different attitude by adding those painful movements and sensations which, taking the whole together, produce to it, as we have said, a preferable condition. The fact that these efforts of the animal to place its feeling in a different attitude give rise to those extra-subjective movements which have the beneficial effect of opening the veins and allowing part of the blood to escape, must not, properly speaking, be attributed to the sensual instinct, but to the harmony pre-established by the Creator between the subjective and extra-sub-

jective phenomena. This harmony places animal activity and material activities in wonderful agreement, and makes possible the preservation and well-being of the animal. In the same way, a troublesome itching makes animals scratch, or bite themselves, or even tear off portions of their skin; the pain which they cause to themselves in this way gives them pleasure, inasmuch as its intensity overcomes the more intolerable discomfort of the itching. It is only a succession of feelings, first passive, then active, then again passive, that a preferable state or attitude of feeling is apt to produce. But, in consequence of the harmony pre-established by the Author of nature between the two orders of phenomena (the subjective and the extra-subjective), scratching has the effect of removing, not only the uncomfortable feeling, but also the tickling and irritating matter which produces it. We must, however, observe that the activity of this matter has entered into feeling, and the expulsion of this activity from it is not the effect of the harmony of which we speak, but directly of the sensual instinct which feels an extra-subjective in the subjective. On the other hand, the removal of the whole matter, and not merely of the activity shown in it, is the effect of the harmony mentioned. Sometimes, nevertheless, the salutary effect, by reason of some accident, does not follow, for example, when the scratching is too violent and produces inflammation. Such exceptions are due to the necessary limitations of finite beings, and are what have been called errors of nature.

over, merge in what we have called *affections*, which are universal feelings, half way between the *sensions* and the *passions*.

2137. In fact, as the *affections* are effects produced in the sensual condition of the whole animal by simultaneous special sensions, so the *passions* are effects of such affections, being roused by the sensual instinct under their influence.

ARTICLE II.

On Affection and the Passions [πάθη] in relation to the Zoetic Course.

2138. The sensual instinct, when moved by *affection*, determines the animal *passions*, in all cases according to the law that "feeling assumes the attitude that is most convenient and natural to it." If in sadness the sensual instinct abandons itself to inactivity, this is because to do the opposite would cost it too much trouble. If in joy it is all active, this is because such activity suits it best. Sometimes it is less painful for it to suffer quietly, and then it reconciles itself to this as to a mode of being more convenient and suitable for it. Sometimes it disposes itself in a state of quiet that so it may receive more fully the agreeable sensation. Sometimes it is unquiet and active, seeking the sensation or the occasion of it. Anger is active. In this passion the sensual instinct enjoys that attitude of vehement, pugnacious activity, which arises when a previous activity has been forcibly prevented from fully displaying and satisfying itself. But anger, like every other passion, when it exceeds a certain limit, is too strong a stimulus, and then it has the effect of all excessive stimuli—it stupefies. This fact goes to prove that sensions have the nature of stimuli, and that what determines the governing law of stimuli is the sensitive principle, and not the stimulus materially considered; since the material stimuli, and the spiritual stimuli, such as passions are, obey the same law, which makes them stupefying if they go beyond a certain degree of force.

ARTICLE III.

On Animal Habit in relation to the Zoetic Course.

2139. The force of *habit* which affects the sensual instinct, and also the vital in so far as this produces the fundamental feeling of excitation and the primitive sensations, has an immense influence upon the sanitary condition of the body. Why, for example, do the inhabitants of mountainous regions, or of places where the air is dry and full of oxygen, feel injuriously affected by the more or less stimulating air of other regions, where there are marshes, rice-fields, and other causes of miasma, or even by a damp and denser air? And why do they afterwards, when they have undergone fevers, inflammations, &c., become accustomed to the new atmosphere? It is very evident that this is on account of habit; and probably the thing happens in this way. The habit of the animal instinct can increase or diminish the effect of the external stimuli according as it withdraws or increases its own co-operation, or more or less aids them in the production of the movements and sensations that are called forth. The animal instinct, therefore, is the arbiter or regulator that balances or adapts the tension and activity of the nervous fibre to the greater or less stimulating power of the atmosphere in the most advantageous way. But when this equilibrium and accord are once fully established in harmony with a given atmosphere, and the nervous fibre has long kept itself at that temper, degree and measure of activity which best agrees with the quantity and quality of the stimuli applied to the skin by a given climate, then this particular degree of activity, and this particular tension of the fibre are preserved and continued as a habit for some time under the new climate. Hence the diseases. When the atmosphere in which the animal previously lived had not sufficient stimulating power, the vitality itself, by its own action supplied the want; but this action becomes superfluous in a very stimulating atmosphere, and the excess of effect is manifested as inflammation.

Moreover, when the body has once acquired the habit of living under the action of few stimuli, the whole zoetic course in its sensations and movements conforms itself to these by a corresponding harmony of motions and functions. But, if the external stimuli are suddenly increased or diminished, the change cannot take place all at once in all the movements and functions that constitute the zoetic course. It takes place first in those parts to which the stimuli are applied, and when the stimulus is the atmosphere, in the skin, lungs, and blood, so that in the beginning there must be a want of equilibrium between the activity of certain parts of the body and that of certain others which do not immediately feel the action of the new stimuli; and this want of equilibrium between part and part, between vessel and vessel, between one portion and another of the same vessel, is, as we have seen, the cause of nearly all diseases.

In a similar way we may explain home-sickness, in so far as it is physical, as well as those diseases to which the body is subject from atmospheric changes even in the same climate, &c., &c.

2140. Hence it would be necessary carefully to classify stimuli, and inquire whether and under what circumstances a change in the conditions of the atmosphere or the occurrence of other accidents would entail an increase in one class of external stimuli and a diminution in another. This, in its turn, might break the equilibrium and disarrange the functions, which are necessary to health, and account for the diversity of diseases which manifest themselves.

ARTICLE IV.

On the Weakness of the Vital and Sensual Instincts.

2141. Stimuli increase activity in the animal; but sometimes they disturb it by so doing. This leads us to speak of the different kinds of weakness and strength which manifest themselves in the animal, and to inquire whether

pathological weakness and strength can be considered as having a foundation in fact.

In the first place, there is one weakness belonging to the vital instinct, and another belonging to the sensual instinct.

2142. Let us consider the weakness of the vital instinct, prescinding, for a while, from the influence which the sensual instinct may exert upon it.

The original effects of the vital instinct are two :

1° It produces the fundamental feeling of continuity, in relation to which it becomes weakened by the opposition of matter or foreign force.

2° It produces the sensions, both, those which constitute the fundamental feeling of excitation, and the accidental ones which are provoked by accidental external stimuli ; and, in relation to this effect, it is weakened by the scarcity and inopportuneness of the stimuli.

2143. Moreover, the vital instinct, in putting the fundamental feeling, and especially that of excitation, in act, gives rise to a succession of extra-subjective phenomena, such as the tone of the living fibre, the tension of the nerves, and incessant internal movements. Its weakness is likewise manifested by the scarcity of such phenomena. Let us cite a few practical cases of this :

If we bind the blood-vessels and prevent the blood from flowing to any part of the body, this part becomes relaxed, insensible and paralyzed. If we bind the nerves, similar results follow. And since these results are diffused according to the sphere of action of the vital activity, which is different from the material and extra-subjective organization, there arise sympathetic effects in parts having no close organic connection with the bound nerve. Molinelli and Brunn, having bound the pneumo-gastric nerves of some dogs, found that the pupillary membrane dilated, the eye became dry and dim and shrunken, the iris brown, the shape of the pupil altered. It is evident, therefore, that the activity of the vital instinct, in animating the body, obliges its extra-subjective particles to arrange

themselves in a given way, to assume and maintain a certain reciprocal proportion, to perform certain internal actions and movements, which are all extra-subjective effects.

2144. It must not be forgotten, that this weakness of the vital principle, in producing the two effects indicated and the conflict which it must sometimes sustain in consequence, implies an animal already existing; whence it follows that the imperfect arrangement of the matter and the unsuitableness of the stimuli can never be universal, but must always belong to some determinate locality, no matter whether this consist of several parts or only one, or whether it be more or less extended.

The reason of this is, that the animal principle would not exist as an individual agent if it had not at least some portion of matter under its full control, and some suitable stimuli giving rise to the fundamental feeling of excitation which is necessary to the existence of the animal.

2145. Let us then consider this fact in connection with the influence which the vital instinct receives from the sensual instinct and from the intellective principle. The vital instinct may very well be weakened by this influence, but the effect of the influence manifests itself also in a certain order having relation to the different parts of the body, and consequently must have a certain localization according to the organ of the animal passion that has been excited.

For example, anger, vindictiveness, and all the passions that partake of sadness, affect the liver particularly. Jaundice is often due to moral causes. If the passion has an intellective origin, the first organ affected must be that of the imagination, the brain; but the images which overpower thought, and the intellectual feeling which is connected with them, operate on the animal principle, and then this, acting as sensual instinct, provokes, increases, diminishes, and alters the action of the liver.*

* The *images* and the *intellectual feeling* are not the same thing. The former, in the case with which we are dealing, (1) become the matter of de-

2146. The weakness of the vital instinct, due to its connection with matter, manifests itself likewise whenever the body loses molecules insensibly, as, for example, by perspiration, &c., without having them renewed by other natural ways, for example, by food, &c. Then the feeling of continuity is lessened, but there follows not disturbance, but merely a diminution of the feeling of continuity and excitation; and the consequent state of weakness cannot be called morbid until, going beyond a certain limit, it assumes a different character; or, at least, it cannot be called *diathetic* weakness, since it produces no independent morbid processes.

If, however, the natural loss of living molecules continues without being repaired, the activity of the vital instinct diminishes and, consequently, all the functions are slackened. When this slackness has reached a certain point, the extenuated matter of which the living body is composed is reduced to such a state that it is no longer sufficiently dominated by the vital instinct, and hence the material forces enter into conflict with it, giving rise to the morbid or diathetic state which consists in this conflict.

If, on the other hand, a part is detached from the living body in an unnatural and violent way, we must then distinguish two effects of this separation, (1) that which takes place in the feeling of continuity, which is interrupted and diminished to the extent of the parts detached, but does

pressing cognitions; (2) these cognitions induce an intellectual feeling or passion; (3) this acts on the body and there produces those movements which find correspondence in the analogous feeling or animal passion. But where does the first action of the intellectual feeling take place? I believe in the brain, because thought uses images as necessary signs. Nevertheless, so long as the action remains confined to the brain, the animal feeling is not awakened; it must affect another organ, as in the present case, the liver. Now does the affection of the liver, which follows that of the brain, come from this action, or does it merely accompany it on account of the complex action of the vital prin-

ciple? To me it seems probable that the affection of the liver (with which there is bound up the analogous animal feeling) is connected with that of the brain even by nervous organic ways. It is certain that when the head receives a severe wound, the liver suffers; abscesses form in it. Barthéz, however, says that this fact cannot be referred to any of the known classes of sympathies between organs. Still the communication between the cerebro-rachidean nervous system and the ganglionic system seems to indicate the path of these successive affections; provided it be regarded in the activity of the vital principle which manifests itself in the various organs.

not yet cause any morbid condition; (2) that which takes place in the feeling of excitation; in other words, pain and the consequent processes and internal movements, and this is a morbid condition. If the wound does not separate any part from the body, there is no diminution of parts (except such as may come from loss of blood, &c.), but merely excitation and the consequent process which terminates either by the healing of the wound, or in some other way.

2147. The pain caused by the wound proceeds from two causes. The first of them is the unevenness of the cut, which does not divide the part so neatly as not to leave some particles neither entirely divided nor entirely united, so that the vital instinct strives to retain them, whereas they have lost that proper position and conformation which are necessary to their being fully dominated by the life of the body. The second is, that the body has lost that perfect organization which corresponded to the attitude originally assumed by the feeling. As a consequence, this finds itself impelled to assume a different attitude, and therefore to strive in that direction. Hence the tendency which it shows to close the wound, if this can be done so as to give the organism a form fitted for its uses, or else to dissolve itself and abandon that organism. The pain produced by these causes, and even the mere force which the feeling exerts for the accomplishment of either of these purposes, give rise to the morbid process which terminates either in health or death.

2148. A struggle likewise manifests itself whenever a foreign agent succeeds in withdrawing some portion of the living matter from the full dominion of life, without, at the same time, altogether depriving it of life.

ARTICLE V.

Three kinds of Weakness, PHYSIOLOGICAL, SIMPLE PATHOLOGICAL, and DIATHESIC.

2149. Having thus determined the concept of the morbid state, we may now distinguish three kinds of

strength and weakness, the *physiological* and the two divisions of the pathological, *i.e.*, the *simple pathological* and the *diathetic*. As to these designations, I do not pretend to say that they are the most proper or suitable, and they may very readily be exchanged by the learned for better ones; but I shall take the liberty of using them to designate, as best may be, the concepts I wish to convey.

2150. I shall, therefore, call *physiological* that strength or weakness which the vital principle exhibits in the exercise of its dominion over matter when this dominion is perfect, peaceful, without irritation, without conflict. The feeling in which this dominion consists is essentially pleasant.

2151. I shall call *pathological* that strength or weakness which the vital principle manifests when it does not completely dominate matter so as to produce the proper and satisfying pleasure of the life of excitation.

When there is anything wanting to the integrity of the organization, as in the case of hunger and exhaustion, there is certainly a state that does not come up to full health; but though, when considered in itself, this state may be said to be in some sense pathological and morbid, it cannot be called diathetic, because it does not clearly show any conflict, but merely inaction on the part of the vital instinct. I admit that this inaction will lead to a struggle, at least, if it reaches a certain point, as we said before; yet there always remains a clear distinction between the concept of *conflict* to which the diathetic state belongs, and the concept of simple *inaction*. It follows that, even when these two things occur together, they ought still to be distinguished by the mind.

2152. How then shall we define and describe that strength and weakness which we call diathetic? I look upon it as combative strength or weakness which the vital principle shows in its acts. In the struggle in question this principle fights sometimes with force and impetus, at other times too feebly. This requires explanation.

ARTICLE VI.

Distinction between the Proximate efficient Cause of Diseases, and their Essence.

2153. In the first place it will be necessary to distinguish the *proximate efficient cause* of disease from its *essence*.

I recognise that the efficient cause of disease may sometimes consist in too vehement an action, sometimes in too slow an action, on the part of the vital principle.

2154. I say "vehement action" and "slow action," rather than *strength* and *weakness*, because these last words signify rather a state than an act; and the proximate efficient cause of disease, in so far as it belongs to the vital principle, must be an act which, along with other causes, produces the diseased state. For example, the unexpected joy caused by a fortunate event may momentarily increase the action of the vital principle to such a point as to drive the blood with greater force than the walls of the vessels can bear, and thus produce apoplexy. Sadness may cause death in the opposite way, by diminishing the action of the vital principle to such an extent as to retard the circulation, and so, by accumulating the blood in the large vessels, to weaken all the functions of life, and at last make death come almost spontaneously (*ἀβίατως*). But this exaltation and depression of force in the action of the vital principle is not the disease, although it is the proximate efficient cause of it. This distinction must be carefully drawn if we wish to arrive at a clear theory of disease.

2155. The mere diminution or increase of force in the action of the vital principle does not, therefore, constitute disease, but may be the cause of it, and, indeed, is so whenever the increase or diminution of this action causes in the organism or in the organized living matter an alteration sufficient to oppose the vital principle in the full exercise of its dominion over the living matter, making this tend to withdraw itself and so giving rise to the conflict which we have described.

ARTICLE VII.

In all Diseases there is Weakness.

2156. According to this concept of disease, we must conclude that in all diseases, without exception, there is a weakness forming the foundation of the disease; and this weakness, in the last analysis, is due to the diminished power of the vital principle over matter. Hence, if during the state of disease the vital principle sometimes displays extraordinary forces, we must not conclude that it is stronger, but only that it is more irritated, if I may so speak, just in the same way as a prince who holds his subjects in such perfect subjection that they cannot stir up rebellion is stronger than another whose subjects are engaged in a doubtful battle with him, although the latter may display greater military forces and perform more valorous deeds than the former. The violence, therefore, with which the vital principle acts during the state of disease is not an evidence of strength, but more truly of weakness, of power in jeopardy.

For this reason, when the conflict ends in victory, the display of combative forces also ceases, and the weakness of conquering principle becomes apparent. Thus all convalescent persons are weak, a manifest proof, it seems to me, that the vital principle is always weaker in a state of disease than in a state of health, although it does not seem so because it is at war. In the same way, even a weak man, if he is seized with great anger, displays more strength than another really strong man, who is quiet and not irritated.

2157. In every disease, therefore, there are weakness and strength.

1° There is a fundamental weakness, relative to the material forces that rebel against the dominion of life;

2° There is a combative force which the principle of life displays in order to maintain and fully regain its threatened power.

ARTICLE VIII.

Systems of Stimulus and Counter-stimulus.

2158. This combative force is what has chiefly attracted the attention of modern medical schools, and produced the doctrine of stimulus and counter-stimulus.

Let us make a few observations on this doctrine.

The action of the animal instinct does not pass beyond the sphere of feeling (1935-1937); but its different attitudes bring with them extra-subjective movements. These movements in matter have an influence in provoking new actions and new attitudes of the feeling itself; because the same matter which, on one side, is beyond feeling, on the other is animate and felt.

From this we have inferred that the action of feeling, or, narrowing the subject, the combative action of feeling, may produce in the organized matter either salutary or injurious modifications. Now, although feeling in its action is blind to the utility or hurtfulness of these extra-subjective effects which afterwards influence the subjective condition, yet Providence has established a marvellous harmony whereby often, if not always, the movements so produced must turn out beneficial to the animal. For example, an inflamed, painful or extremely sensitive part rejects all stimulus. Now, the sensual instinct produces what movements it can, and the organism allows it, in order to repel any matter that touches the diseased part or any part connected with it. In encephalitis, in hydrocephalus, in apoplexy, &c., vomiting is frequent, the nerves of the stomach refuse stimuli, &c. The sensual instinct merely seeks to withdraw itself from the disagreeable and painful sensation, or from fatigue disagreeable to the nerves, which are in pain and desire repose; but it is providential that the movements which it makes for this purpose are by nature so arranged that they lead to the expulsion of the stimulating extra-subjective matter.*

* Matter on the stomach becomes all the more troublesome the more the digestive function is suspended or impeded, and this suspension clearly indi-

The combative efforts of the vital principle, therefore, although they always tend, as to their immediate and subjective end, to perfect the state of feeling, are, nevertheless, not always beneficial to health. The truth is, that health depends, in great measure, on the condition of the extra-subjective matter. These efforts, although they have an immediate salutary object within the subject, give rise to the extra-subjective movements (constituting in part the morbid processes), through the mysterious link which connects the subjective order with the extra-subjective; and these movements do not always restore the organized matter to a better state and disposition, but sometimes disconcert and disarrange it further, so that it determines the abnormality of the zoetic course, which at last becomes fatal.

2159. Supposing, then, that a disease has arisen through an *irritation* (this word being taken in a general sense to mean "an attempt on the part of matter to withdraw itself from the dominion of life"), whatever be the cause that has produced this derangement, and supposing that the vital principle rises up to reestablish its dominion, there are three possible results :

1° The vital principle may fail in reestablishing its peaceful dominion merely because it acts too feebly, and in this case it might succeed if force were added to it (universal over-weakness of combative action without disproportion);

2° The vital principle may fail in reestablishing its peaceful dominion because it acts too impetuously, produces violent movements in the matter, and extra-subjective derangements which impair the condition of the matter in its relation to life, and render it more recalcitrant to accepting this dominion (universal over-strength of combative action without disproportion);

cates weakness on the part of the vital principle, which is wearied, suffering, or occupied with its forces elsewhere. That the feeling itself does not seek to cause the expulsion of the matter, but

merely to withdraw itself from discomfort, is clear from the fact that it sometimes contracts and overturns the stomach when empty.

3° The vital principle may fail in reestablishing its peaceful dominion because it acts with an unequal and disproportionate action, that is, with an action too great in some places or parts of the body, and too weak, relatively, in others (simultaneous over-strength and over-weakness of the partial and local combative principle).

2160. These three results present themselves at the onset to thought; but are the first two really possible? It seems to me that they are not; at least, as I have already said, I do not think that they constitute a *morbid diathesis*, although they may be the cause of one. In fact, supposing that for any reason the vital principle were generally weakened; if we prescind from the effects which this weakness may produce, the result would be merely a life somewhat less active; and this, by itself, is not a morbid condition. If, on the other hand, this weakness and inactivity has been caused by a previous morbid irritation or condition, then the morbid condition is not the weakness, but precedes the weakness, as its cause, and may run its course without meeting with any strong opposition. But if the weakness were not one of combative action, but of vital action in general, and the slackness produced by it in the vital functions were to cause some derangement, repletion, or congestion of the humours, &c., then this weakness might be the cause of disease without being the disease itself.* It is true that as soon as the effects just named have taken place, the morbid state and the conflict begins; but these effects are all local and, therefore, belong to the third of the cases mentioned.

The same may be said of the general strength of the combative action. By itself it is not disease. If, however, the vehemence of this action, or even the strong action of excited general vitality, were to produce any derangement

* *Congestions* have been divided into *passive* and *active*. The passive are those stagnations or obstructions which arise from sluggishness of circulation, and generally from inactivity in the vital functions. The active are those

due to the over-activity of particular organs, which violently force the humours into the vessels and gorge them. Mostly the two things occur together, as we remarked when speaking of inflammation.

in the matter, such as the rupture of vessels or the like, then the disease would begin with these effects, which are local and partial.

2161. It must be remembered also that every irritation which determines the combative action is always local. Now, whenever there is localization, there is always a succession of actions and of movements which extend from one part to others according to the organization of the matter and the attitude of feeling. Thus, if a wound in the brain causes hepatitis, it is plain that the latter effect succeeds the former, and that it is a local trouble which follows another likewise local, and does so in consequence of the combative action of the vital principle roused by the first irritation located in the brain. Hence, in the morbid condition, the conflict never extends equally and simultaneously to all the parts of the body, but is confined to some of them, which are affected in succession. This is the reason why in every morbid condition we find realized the third of the results above specified, namely, that "the vital principle acts with unequal and disproportionate action, so that it is greater in some parts of the body than in others."

2162. Having thus restricted the concept of disease, and distinguished hygiene, whose business it is to preserve and strengthen health, from the art of healing, we must now direct our attention to the locality in which the combative action begins, and to all the localities to which it extends its effects. For this purpose we will consider,

1° That the combative action naturally fatigues and wearies the vital principle; whence it often happens that a diminution of that action, so far from diminishing the forces of the patient, preserves them even as the strength of a hard-working man is preserved when his labours and efforts cease;

2° That the combative action, in exhausting the forces of the vital principle, produces an apparent strength in those parts in which it displays itself, and a corresponding weakness and exhaustion in all the others. We see this

in local inflammations, which emaciate and exhaust the body, while in the inflamed part there is observable a great action, which is not strength, but combative action and excessive effort;

3° That the combative action, being due to a primitive irritation, may do either of two things. *First*, it may not generate other irritating modifications of the matter, and then it ceases as soon as the primitive irritation is put a stop to (diseases of irritation); or, *Second*, it may generate fresh irritating modifications, and then, in order to restore health, the combative action itself must be modified (diathetic diseases);

4° Sometimes the local combative action produces irritating modifications of the matter because the movements excited in the parts or particles are such that they cannot be controlled and regulated by the force of the vital principle; and then there is a relative excess of local combative action combined with a corresponding deficiency of general vitality. This is probably the case that induced physicians to form that class of diseases to which they gave the name of *sthenic diathesis*;

5° If the local combative action is weaker than the irritation which causes it, it allows the latter to prevail, and the ill-disposed matter withdraws itself more and more from the dominion of life. This is probably the case that induced physicians to form that class of diseases which they called *asthenic diathesis*;

6° It is certain that where vitality is stronger, the combative action is likewise greater. This is why, whenever it is thought advisable to diminish local combative action, recourse is had to those expedients which seem to reduce the vital force, and when it is thought advisable to increase the combative force, this seems to be obtained by increasing the force of the vital principle. But it has not yet been shown that this is the only way of diminishing or increasing the combative action, that is, by diminishing or increasing the strength of the vital principle.

2163. It remains, therefore, to inquire,

1° Whether the combative action producing a sthenic diathesis cannot be brought back to its proper course by offering resistance to its ravages through an increase of the general vitality. Or else, supposing that by increasing this general vitality we obtain both disadvantage and advantage, the disadvantage of increasing the combative force which ravages, and the advantage of increasing the general power of the machine which resists this ravage, it remains to be seen whether it may *ever* happen that the advantage prevails over the disadvantage, and if it may, when and how;

2° Whether the combative action producing an asthenic diathesis may be corrected by merely increasing the general vitality, or else by locally exciting another irritation and stirring up a new combative force;* and if this is possible, we must first inquire what are the causes why the combative action does not respond briskly to the stimulus, but stands as if discouraged, and then determine the relations of these different causes to the remedies.

These are all questions belonging to analytic medicine.

* The action of a strong tonic on the mucous membrane of the stomach produces phenomena similar to those of gastritis; hence the notion of some physicians that therapeutic substances

restore the human body to health by opposing an artificial malady to a natural one, or, as I should say, one irritation to another.

CHAPTER XVII.

CAUSES OF THE WEAKNESS OF THE ANIMAL INSTINCT.

2164. Let us retrace our steps.—We have expressed the opinion that the ground of every malady consists in a weakness of the animal instinct. We consider it important not to leave this question without adding a few reflections, resuming and enumerating with greater clearness the causes that weaken this instinct, and destroy or lessen its power over that material *extensum* in which the feeling that constitutes the animal terminates.

ARTICLE I.

The Vital Instinct, considered in itself, is a Power without any Assignable Limits.

2165. In the first place, I would observe that the animal instinct in itself is inexhaustible; its limits are due solely to its being conditioned by the felt, its term.

The felt may be conceived as increasing in extension without limits. There is no reason to deny that the sentient principle might invade the whole universe, if the necessary continuity of parts were granted. Indeed it tends to extend and continue itself every time that any new portion of matter is added to the *continuum*, its term. Hence, if a foreign body tends to divide a living body, the instinct offers resistance.

In the second place, the animal instinct has a tendency, likewise unlimited, to excitation. Hence, with its activity it seconds and promotes all the movements that are initiated in the *continuum*, according to the preestablished laws which we have pointed out.

In the third place, the animal instinct tends to individualize itself. This is its mode of raising itself to the highest possible power, and of having the strongest and most continuous excitations. This it does through its tendency to excitation combined with the forms of the elements and of the material molecules. Indeed, if in a *continuum* composed of elements immutable in form we suppose that there is a virtue seconding every motion that arises in them, and does not destroy their continuity, it must necessarily form for itself an organization ever more fitted to promote the greatest quantity and frequency of motion, and to cause this motion to perpetuate itself. Now a motion like this would be impossible unless it were harmonious, that is, unless the partial motions had unity.* Feeling, therefore, necessarily arranges itself with a view to unity as its most natural and satisfying mode.

ARTICLE II.

Two Types to which all the Ills of Animality may be reduced.

2166. If, therefore, we consider the animal instinct in itself, we find no cause sufficient to explain its weakness or bad condition. Of itself, it necessarily tends to good, and is capable of everything. The cause in question is to be found in its *condition*, and in certain forces superior to it, which exert an influence upon it.

2167. The condition of the animal, that is, its corporeal term, must have three accidents: continuity, excitation, organization. Continuity may be divided, but not altogether destroyed, because the body is essentially continuous. Excitation may be altogether removed, and then the vital instinct produces only the feeling of continuity, and can no longer manifest any of those forces by which the animal functions are performed. In this way the animal ceases from simple weakness or exhaustion. The *organization* may be dissolved, and then again the animal

* We may here call to mind the theory of Aristoxenus, that the soul is a *harmony*.

ceases, having lost its individuality.* But if the excitation or the organization is not suddenly destroyed by some greater force, but merely threatened by a foreign force, then the animal instinct enters into the conflict above described.

Besides this, in man, the sentient principle is subject to the action of the intelligent principle, with which it may likewise struggle, or from which at least it may derive greater strength or weakness.

2168. Hence, the primitive types of all the ills to which animality in man is subject are reducible to two :

- 1° Simple weakness of the sentient principle ;
- 2° Interference with the harmony of excitation.

2169. In the latter there occur three accidents :

(a) The animal instinct is the weaker side in the struggle, and then it becomes discouraged; disharmony takes place in the excitation, and increases until the excitation breaks up altogether, destroying unity and individuality, and causing death ;

(b) The instinct is the stronger side, and succeeds in overcoming, or expelling the hostile force, and so bringing about health ;

(c) The instinct, although the stronger side, nevertheless, by its violent action produces new derangements in the extra-subjective, and thus creates an enemy to itself, which becomes stronger than it, in the shape of a new malady with which it has to struggle. In this case one or another of the three accidents mentioned reappears.

* The organization of the animal is sometimes modified slowly in consequence of the reproduction of the internal stimuli which change, and which promote different internal movements, all this naturally according to the law of a zoetic course corresponding to that particular animal type. When the silk-worm becomes a chrysalis, and the chrysalis a butterfly, what happens relatively to the identity of the animal? Does the new individual still preserve true identity with the preceding one, so that the same individual appears successively under the three forms? Or is

one individual transformed into another, and the identity lost? Or must we rather say that in these transformations there are only two individuals concerned, and that the chrysalis is an intermediate form, imperfect, without individuality, a kind of living paste with disharmonious internal excitations seeking to reach harmony and unity in order to be individuated again, and at last finding them in the state of a butterfly?—Here are some of the many queries still untouched by the students of nature.

ARTICLE III.

Enumeration of the Causes of Weakness in the Animal Instinct.

2170. Having seen that all the ills of animality consist in *weakness* of the sentient principle and *disharmony* of the sensible excitation, let us say a few words on each of these causes.

The real causes of the weakness of the sentient principle in man all come from the two foreign principles with which it is connected (intelligence and matter), and may be reduced to the following :

SECTION I.

First Cause of Weakness in the Animal Instinct.—The Action of Intelligence.

2171. When the intelligence makes known to a man his own weakness in comparison with the difficulty of an aim most ardently desired, there appears a diminution of force even in the animal principle. This is because in man the intellective and sensitive principles are identified, so that the weakness of the one is shared by the other. Diminution of the consciousness of strength is diminution of strength.

Then, if the intelligence hears of a misfortune as impending, or as having already occurred, there spring up the passions of fear, solicitude, sadness, anxiety, &c.* On the contrary, if the intelligence hears of some fortunate event that is about to happen, or that has happened, there spring up the passions of hope, joy, &c. It is a fact that these passions do not remain confined to the sphere of the intelligence, but diffuse themselves over the animality.

* When the soul is about to perform an important animal function, and is seized by one of these passions, it shows itself very sensitive, becomes disconcerted and goes astray in its action. Take the example of a woman in childbirth : if she hears of any accident that bodes ill to the family, or lends an ear

to any old wives' sinister prognostications, her strength diminishes, her labour is suspended, and hæmorrhage, and sometimes even death takes place. While she is nursing her child, a piece of bad news is sufficient to interrupt the flow of milk to the breast.

All the melancholic passions appear when the circulation of the blood and other animal functions become sluggish. Now the sluggishness of the animal passions is evidently the effect of the weakness of their motor principle, I mean the sensual instinct. This instinct, therefore, shares in the affection of the intellective principle and in its weakness, which consists in a diminished consciousness of its own forces, in the diminution of the intellective feeling, because consciousness creates feeling, and feeling force.

2172. And here, be it observed, that when the cause which weakens the animal instinct is a passion of the intelligence, the weakness is not at first disharmonious or partial, but becomes so in its successive actions, because the intelligence acts immediately on the sentient principle, which governs, though in different ways, all the parts and functions of the living body.

SECTION II.

Second Cause of Weakness in the Animal Instinct.—The Morbid Conflict.

2173. The second cause which lessens the activity of the sentient principle arises from the morbid conflict. When the instinct feels that it has too great a force opposed to it, it becomes discouraged.

2174. This is due to the union of the subjective feeling with the perception of the extra-subjective adversary. When the perceived force of the extra-subjective, and the simultaneous feeling of its own strength, are fused together through the synthetic force into a single affection, then these effects of discouragement show themselves. If the animal instinct feels that it has to battle with a strong adversary, it acts the less, the more laborious it finds such action to be, until at last it ceases from acting altogether.

2175. It sometimes happens that, when the instinct is strong and sure of itself, if it suddenly meets with an unforeseen obstacle, it combats it with so much force, following the habit which it has contracted, that it produces

derangement in the extra-subjective. If, however, the obstacles are many and persistent, they by little and little diminish and damp the ardour of the instinct, thus depriving it of its strength, as we see in the case of chronic maladies into which the most acute diseases sometimes pass.

SECTION III.

Third Cause of Weakness in the Animal Instinct.—Diminution of Internal Stimuli.

2176. The third cause which weakens the action of the animal instinct is the diminution of internal stimuli. These may diminish in consequence of a previous weakness in the instinct itself; because when this is weakened, all the movements of the machine become slower, and diminution of motion is diminution of stimulus. But they may also diminish on account of the diminution of the humours, especially of the blood, the principal of them, and in general on account of a loss of substance. Hunger calls up sad ideas, discolours the imagination, causes discouragement, and sends a feeling of languor through all the limbs. They may also be diminished by some mechanical obstacle which impedes the movements of the living machine, as we see when the vessels ossify, or which prevents their free communication, or diminishes the rapidity of it, as happens in cases of obstruction; for example, when, in the last stages of pulmonitis, the phlegm overlays or encumbers the air-cells of the lungs, so that the blood, being unable to complete the hematosis, returns to the heart, venous and inactive almost as it came from it; or when a nerve is bound, &c.

SECTION IV.

Fourth Cause of Weakness in the Animal Instinct.—Diminution of External Stimuli.

2177. In the fourth place, the animal instinct is weakened when there is a diminution of the external stimuli, food,

drink, air, &c. On the other hand, the vital activity increases when these stimuli increase, and does so in different ways, according to the quality of the stimuli and the localities to which they are applied. The oxide of carbon breathed into the lungs produces a peculiar hilarity, sulphuric ether a stupefaction of the senses, &c.

SECTION V.

Fifth Cause of Weakness in the Animal Instinct.—Excess of Stimulus.

2178. And such stupefaction of the fibre caused by excess of stimulus is the fifth cause of the weakness of the animal instinct in its action.

2179. To understand the nature of the stupefaction I mean, we must remember that stimuli produce excitation only in so far as they produce internal movements among the animate molecules. If, therefore, the movements excited are mutually contrary, so that the one cancels the other, as happens in the case of excessive stimulation, these movements, becoming less and opposed to the animal spontaneity, impart to the fibre a kind of numbness that does not respond to the stimulus.

SECTION VI.

Sixth Cause of Weakness in the Animal Instinct.—Concentration of the Activity of the Instinct in certain Localities.

2180. Finally, if for any reason the action of the instinct is concentrated and almost exhausted in some part of the body, or in some special function or operation, there appears a corresponding weakness in other parts, functions and operations. This, however, happens with great differences, and in various ways, which must be distinguished.

2181. Generally speaking, it is well known that those parts of the human body which are most used become proportionately more developed, larger, and stronger than the rest. The muscles of peasants, porters, and other persons

accustomed to hard labour excel by far in size and power of endurance those of persons who lead an easy and delicate life. Even the mass of the brain seems to increase in men devoted to study. It has been said that the greater thickness of the skull among the ancient Germans was due to the fact that they were in the habit of carrying great weights on their heads.

2182. One of the chief reasons why the animal instinct accumulates its activity in some particular part of the body in an extraordinary way and withdraws it from others, is the morbid conflict. Hence, in all diseases, which always appear to be, or in process of time, to become localized, we find a want of equilibrium of force, too much strength and too much weakness at once, too much activity in one part and inactivity in the others.

2183. When *external stimuli* which produce pleasure and thereby increase excitation are applied to any part of the animal body, the animal spontaneity accumulates its activity there in order to obtain that pleasure to the fullest possible extent. This increase of nervous activity in that part determines a greater flow of fluids to it. If this flow is excessive, or if the fluids go astray, the body may be greatly injured; and this is one of the causes of that exceptional disharmony, which we have mentioned, between the subjective and extra-subjective phenomena.

2184. If, on the other hand, the *external stimuli* applied to the human body are disagreeable, the animal instinct exerts itself to get rid of them. But this exertion in that place likewise causes a flow of fluids or *internal stimuli*, and thus it sometimes happens that while the instinct in exerting itself to remove the excessive and disordered stimulus which has been applied to the part from without, it accumulates internal stimuli in place of it. Now these often do more harm to the body than the action of the external stimuli which it is trying to remove would have done. For example, while the instinct, by efforts of coughing, tries to get rid of the irritation which it feels in the lungs, or the bronchial tubes, or the trachea, it accumulates

so much blood in these parts as to produce or increase inflammation in them, or even to cause rupture of the vessels, which brings the malady to the saddest of all terminations. It is especially the direction and afflux of the fluids that produces the comparative strength or weakness to which I refer.

2185. The activity, therefore, of the animal instinct may concentrate itself in one locality, and show itself more or less active in it for several reasons. Let us distinguish these.

First Cause, Intellectual.—In ecstasy and other great intellectual actions and affections, a man, sometimes, is deprived merely of the consciousness of his sensations; at other times it seems as if the sensations themselves were really impeded and the mobility of the sensorial organ taken away. In this case the activity is exhausted rather outside of the body than in any part of it; although the brain, which aids the intellect by furnishing it with the signs of the images which fix its attention, almost always remains concerned.

Second Cause, Sensorial.—One kind of very keen sensations impedes another kind of sensations which are less keen, although the two may belong to different organs. In sleep the activity seems concentrated in the brain, in the internal faculty of feeling, and hence withdrawn from the stimuli of the external sensories. Perhaps in this case also the increase of sensorial activity in the organ of the fancy is due to the flow of the humours in that direction.

When any facial or frontal branch of the fifth pair is struck, the result is blindness, which lasts for a longer or shorter time,* without any lesion of the optic nerve. In this case it seems as if the brain suspended its influence on the nerve of vision, because, being excited, and occupied in the painful conflict, it has no energy left to devote to the operation of sight; unless, indeed, this phenomenon should have to be attributed rather to the fact that the cerebral

* Alexander the Great became blind for some time after being struck with a stone.

movements caused by the wound or blow are what disturbs the sensorial movements. Should such be the case, however, it must be observed that these movements are not in any way mechanical, but animal, and therefore such as to employ a part of the activity of the vital principle. It may also be, that such wounds and others that benumb any sensorial organ, do so on account of some alteration which they cause in the direction of the fluids that ought to suffuse such organ.

2186. *Third Cause, Concourse of Fluids.*—And it is precisely the direction of the fluids (which are the chief internal stimuli) that we must consider more closely.

It is an undoubted principle, that “wherever the vital action is comparatively greater, there the fluids assemble in greater quantity.”*

We say “comparatively,” because we must always bear in mind that what constitutes a morbid state is not an *absolute* degree of force, but a relative one, a want or equilibrium in the vital force, which alters too much in one part as compared with another, thus causing in it clear symptoms of corresponding weakness.

Let us assume that cold is a debilitant, and that, when it is moderate, it has the effect of giving tone to the fibre by removing an excessive stimulus which benumbs it, or even by contracting it when it is too much dilated.

If, then, cold is a debilitant, wherever it is applied there must be a diminution of vital action. Now this may account for the fact that, when the skin is exposed to the action of very cold bodies, or when we pass, lightly clad, from a hot to a cold temperature, we carry away various inflammations of the mucous membranes, of the pleura, lungs, intestines, stomach, bladder. The vital activity being diminished in the capillary vessels of the skin, the activity of the internal vessels of these membranes is relatively increased: the fluids must, therefore, flow from

* How is this most certain fact to be explained? We may suppose that the natural movement, at least of the capillary vessels, is peristaltic, and that this movement directs the fluids to the place of greatest excitation.

without inwards,* and there be congested and stagnate: perhaps also the pressed blood must extravasate from the venous capillaries into the lymphatic glands, which probably connect with them.†

2187. For a similar reason, perspiration is promoted by warm baths and drinks, and hindered by cold baths and drinks. In other words, the heat renders the vessels on the internal or external surfaces more active, whereas cold renders them comparatively less so; hence a change in the direction of the fluids. The reason why a warm drink excites perspiration on the surface of the skin seems to lie in the law of sympathy, of which we have spoken, and which causes the sentient principle to put all similar organs in action at the same time.

Ice is used beneficially to stop obstinate hemorrhages. This effect seems attributable to two causes: *First*, physiological action, by which the extremities of the vessels, being comparatively weakened, determine the blood to take the contrary direction and recede; *Second*, mechanical action, which, by narrowing the extremities of the vessels, prevents the afflux of the blood.

Terror causes an abundant flow of clear, inodorous urine, because, by diminishing the internal activity and

* Why does a little cold applied to the feet cause a separation of urine?—Because it relatively increases the action of the secretory and excretory organs of this fluid.—And here we must observe that it is one thing for the action of an entire organ to increase, and another for the vital action of its tissue, of its capillary vessels, to increase. The function of the organ may increase, in consequence of increased activity in the nerves which make it act, without any notable alteration in the vital activity of its tissue or its capillary system. It is when this action is notably increased that it hinders or even prevents and holds back the excretion of the fluids. Thus inflammation of the kidneys causes retention of the urine.

† Bichat is of opinion that the exhaling vessels admit blood in place of serum, and that this causes inflamma-

tion. Hence it seems that in the region of inflammation there is a comparatively excessive activity, which is the cause of the accumulation of the blood, and a subsequent activity, which is the effect of the accumulated and stimulating blood. This subsequent activity attracts new blood and so prevents the blood from being properly disposed of as fast as it gathers. In this case, the venous and lymphatic vessels also would acquire an increase of physiological activity at the same time that they are enlarged by over-distention, thus showing mechanical weakness. The glutting effected in this way, especially in the lymphatic vessels, would produce the new vegetations which appear under such conditions. The word *inflammation* would embrace at once the totality of these phenomena.

comparatively increasing that toward the outer extremities, it accelerates the fluids from the inside to the outside of the body.

2188. On the contrary, irritations of the viscera suppress the secretions.* All the acute inflammations of any organ contained in the three splanchnic cavities suspend and alter the course of the secretions. Inasmuch as there is a great deal of activity at the centre and corresponding weakness toward the extremities, the course of the fluids cannot proceed with the same ease toward the latter. This is why food placed in mouth causes a flow of saliva, and why a little vinegar applied to the *conjunctiva* or the pituitary membrane causes tears. When any of the intestines is wounded, digestion is arrested. So gastritis may prevent swallowing.† Bichat observed that while the food remains in the stomach the flow of bile is slight, but that it increases as the food passes into the duodenum, so that then a great deal of it is found in the intestines. This again is due to the same cause, namely, that while the stomach is stimulated by the presence of food, the vital activity in it is greater, and therefore, draws the fluids to it instead of allowing them to flow elsewhere. Likewise, it is an undoubted fact that the stimulus which increases activity in the external parts of the secretory and excretory canals is one of the chief means employed by nature to determine the secretions and excretions.

* For the same reason, the majority of brain diseases, arachnitis, hydrocephalitis, cerebritis, &c., prevent the secretion of the nasal mucus, and the nostrils become dry. Sometimes the restoration of a natural secretion dispels obstinate pains in the brain, cures convulsions, epilepsy, spasms, &c. Such restoration is a sign that the equilibrium between the internal and the external action has been restored. On the other hand, an excessive secretion sometimes causes headaches and convulsions, because in this case the internal force shows itself too weak in comparison with the external.

† According to observations made by Ferrein, Tissot and Barthez, persons subject to *acrimonious degenerations*, when they partake of rancid fat food or flatulent beverages, frequently experience a spasm that prevents them from swallowing, until they have sent back a few swallows of the obnoxious matter, or until they belch a little. This is because the irritating principles stir up the vital activity, and withdraw it from another part, where symptoms of corresponding weakness then manifest themselves.

According to Broussais and other modern physicians, those great evacuations which go by the name of *crises* are merely the effect of the cessation of the irritation of the viscera. Why did this irritation prevent the natural secretions? Because it increased the vital activity within, and rendered it correspondingly weak toward the circumference; hence the outward direction of the humours was prevented.

2189. Although the reestablishment of the functions of the secretory organs, when it takes place naturally, is due to the cessation of the cause of the disease, it cannot be denied that these evacuations, when produced artificially, are frequently a means of restoration to health. An abundant perspiration provoked by drinks, or by general or partial vapour-baths, dispels obstinate headaches. Blisterings, burnings with rubefacient caustic, have the same effect for the same reason. These are so many means for increasing the action of the sentient principle on the skin, and hence for diminishing it correspondingly in the internal parts. By means of them the fluids are driven outwards, and thus the internal stimuli whose excess causes pain are diminished.

2190. We must, however, remember that when the vital activity is increased in one part of the body by an irritation or any other cause, this activity may be communicated to other parts, either because the irritating matter changes place, or by a kind of radiation of the activity itself to parts organically continuous, or finally by true *sympathy*.* In this latter case the part that shares in the increased activity becomes more active simultaneously with the other parts that do not themselves share in it.

2191. Moreover, some parts which have become less active occasion an activity comparatively greater than others. When owing to some inflammation the lymphatic glands swell—for example, when in consequence of a boil

* Broussais observed that gastric irritation precedes and accompanies most cutaneous inflammations, and especially

chicken-pox, scarlatina and measles. The cause in all these cases seems to be the same.

in the armpit the glands there become tumid—this seems to be because the inflammation by rendering other parts comparatively less active, leaves them too weak to attract to themselves and transmit the humours segregated by the glands: hence, the glutting and swelling of these. Consumption, when far advanced, weakens the parts that surround, or are in sympathy with the lungs, and so renders comparatively more active the parts of the vessels that are farther from the centre. This accounts for the increased heat in the palms of the hands and the soles of the feet, the flushing of the cheeks, the vivid redness at the root of the tongue, the abundant and colliquative sweats, the diarrhœas, the edematous swellings at the extremities.*

2192. It is precisely this comparative increase and decrease of activity, this series of effects which in their turn become causes, that immensely complicates medical science, and renders it a matter of extreme difficulty to follow the zoetic course in its variations.

2193. If we consider those fevers that begin with a sensation of cold soon followed by a violent heat, it seems that during the chill there is a reflux of blood from the extremities to the centre, and during the heat an afflux from the centre to the extremities. Now, when we remember that the blood is carried back to the heart by the vein system, and diffused to the extremities by the artery system, it seems as if we ought to infer that the vein system acquires too much force as compared with the artery system, and the artery system too much weakness as compared with that of the veins. According to this, the blood, being carried to the heart with too great impetus and rapidity, would afterwards be carried back, by the reaction of this organ and of the over-stimulated arterial vessels, with like impetus to the extremities. We should, however, have to suppose that the excess of force

* I have already said that by sympathy I mean that law which causes the *sentient principle*, when acting or suffering in one place, to do the same in another, not because this second part

is materially connected with the first, but solely in virtue of a law which governs the activity of the same sentient principle which it determines.

in the vein system was due to a *state* of greater tension or action of the vessels, while the reaction of the heart and the arteries was not increased by a *state* of greater tension or action in themselves, but by the greater stimulus exciting them, I mean the greater abundance and rapidity of the blood, even leaving out of view its composition, which seemingly exerts an influence in continuous rather than in intermittent fevers.*

But if this hypothesis is correct, what can be the cause of want of equilibrium between the activity of the artery system and that of the vein system?—This is an extremely complicated question.

If in a given locality the blood accumulates by a comparative increase of action in it, this blood there accumulated and, as it were, stagnant, may and must undergo different alterations in its principles, as we see in the case of inflammation; and this alteration may communicate itself to the mass of the blood and so cause fever, which is thus the effect of local irritation or inflammation.†

2194. There can be no question, that the law according to which the vessels direct the fluids to the spot where the vital activity is comparatively greatest depends chiefly on the condition of the sensor nerves. This is clear from the following well established facts:

1° When the irritation grows painful, it produces greater effects through sympathy;

2° The more nerves the inflamed organs contain, the more painful is their inflammation, and, therefore, the more are the animal functions impaired;

* It is an undoubted fact that in inflammations the blood changes in composition, becoming more stimulant by the alteration of its principles; and it is perhaps in this fact that we must look for a cause of continuous fever, instead of supposing that the alteration of the principles of the blood is solely the effect of the fever.

† I would call attention to the fact that in cases of amputation fever does not set in at once, but after a day or two, when the blood has had time to

undergo alteration. When a thigh has been successfully amputated, after the lapse of a few days a violent fever sets in, the patient complains of acute pain in the side, the pus is greenish and fetid, the tongue turns black, the teeth assume a dark coating, the patient dies, and in the autopsy there is found a quantity of purulent serum on one side of the pleura, albuminous concretions, &c., manifest signs that the principles of the blood have become altered.

3° Sympathies have greater force and readiness according as the person is more sensitive.

2195. It must, however, be observed that in the vascular and nervous systems the propagation and the concentration of vital activity follow opposite laws. In the vascular system this activity concentrates itself through the afflux of humours in the spot where some cause has increased it; in the nervous system, on the contrary, it propagates itself along the ramifications, setting out from the spot where it was first increased, and always observing its own laws. Hence gastritis, for example, is accompanied by headache through nervous communication.

2196. Nevertheless, it cannot be doubted that inflammation, by increasing the vascular activity in the inflamed part, produces a corresponding weakness in other parts, as is seen from the emaciation which follows it, and which prevents nutrition.

2197. During digestion, the first excitation of the heart and of all the functions is followed by a state of weakness in the organs; the external senses and the muscles lose a part of their activity, a cold shiver is felt, showing that the blood no longer flows with the same force and abundance as before to the extremities. But in this case the conquering process of the stomach which converts the food into chyme is not a morbid derangement, but only a fluctuation of the physiological force. The proof of this is, that that increase of activity in the stomach gradually ceases according as the stomach comes nearer to the completion of its function and distributes the food to the other parts, thereby restoring and increasing their forces. This is a fact entirely in conformity with the spontaneity of the animal instinct.

2198. Morbid irritation or inflammation is a fact similar to this, except that by running counter to the spontaneity of the animal instinct, it rouses the combative activity of that instinct, and instead of resulting in the nutrition of the parts, it subjects them to injuries, one of which is that it prevents nutrition, by holding back the flow of the fluids

which ought to diffuse themselves to feed these parts. Here are a few facts out of many.

Inflammation of the kidneys sometimes causes atrophy in the testicular glands.

In what is called the "Painter's Colic," it is strange to see how the muscles between the thumb and the forefinger waste.

In cases of abscesses situated in the coatings of the small intestines, the eyes become hollow and the fatty matter which is intended for their sustenance diminishes to an enormous extent.

In all chronic inflammations which terminate in death, emaciation becomes extreme and universal throughout the whole body, while the inflamed part continues to vegetate until gangrene sets in.

In a word, I hold the principle that the fluids flow to the place where the vital activity is *comparatively* most increased to be so important, that it seems to me sufficient by itself to enable the observer to discover the ramifications of the vessels that are interwoven in the human body, and, I was almost about to say, constitute it.

2199. *Fourth Cause, Excitation of the Sensor and Motor Nerves.*—We have said that the activity of the sentient principle is concentrated where *sensation* is keenest. Let us now consider that concentration of activity which is due to the extra-subjective phenomenon accompanying sense, that is, to the *movement* of the nerves.

This movement is propagated from the point where the nerve has been struck, in all directions, not by a mere communication of mechanical motion, but by a mechanico-physiological communication. It is, nevertheless, certain that the activity of the animal principle becomes tired, if the sensor and motor nerves are excited too much, and hence leaves other parts weak, just as it leaves a state of debility after violent movements, for example, after convulsions.

2200. It is likewise certain,

1^o That the nervous system sometimes performs func-

tions in which only a part of it is concerned, and then the other parts remain as if insensitive. This happens in cases of mental worry, in which only the brain, the organ of the fancy, is concerned, and in which consequently the sensitivity of the skin seems annihilated. It happens also in certain morbid affections to such an extent that the skin hardly gives any sign of sensitivity;

2° That if the nervous system does not perform any of these functions, the contrary effect sometimes takes place. The *sensitivity* of the skin increases beyond measure, for the reasons which we assigned when speaking of diseases of the brain, as we see in maniacs, hypochondriacs, melancholics, and hysterical females.

2201. The fluids of the human body are the *internal stimuli*; the nerves are the things stimulated. The stimulated nerves, by their longer or shorter action, or even by their action sympathetically diffused, impart activity to the vessels to which they extend, and thus cause the fluids to rush to those parts, withdrawing themselves from others,* which become correspondingly weaker, and consequently also render the nerves that go to them weaker.

* It is always a question of the comparative amount of stimulus. The fluids act more or less as stimuli, 1° according to their more or less stimulating composition or crasis; 2° according to their greater or less afflux to the particular

part; and 3° according to the force or rapidity of that afflux. These three modes of stimulation produce different effects, and must all be carefully distinguished by the wise observer of nature.

CHAPTER XVIII.

APPLICATION OF THE THEORY TO EXPLAIN THE PHENOMENA OF THE LOCALITIES OF THE LIVING BODY.

2202. Lastly it remains for me to speak of the localities, to which I have several times referred in a passing way. For my purpose it is not necessary to write a treatise on the subject, and indeed this would be a task far beyond the limits of my knowledge. I propose merely to attempt some solution of this question: "Seeing that the animal principle is one and simple, why does it manifest different effects of its action in certain parts of the living body rather than in others?"

2203. The theory of localities has general principles or laws that apply equally to the healthy and to the diseased body, whether we consider the body as left to itself and passing through the successive stages of the zoetic course unaltered by artificial stimuli, or try to determine the effects of the stimuli as applied at will to the healthy or diseased body. We shall, therefore, first set forth the general laws of the *localities* which we shall call *physiological*, afterwards making some application of them to the diseased body, and deducing certain *pathological* laws; and, finally, we shall make some application of the theory to the effects of those artificial stimuli which are used in order to restore the human body to a state of health, thus touching upon certain *therapeutic* laws.

ARTICLE I.

Physiological Laws of Localities.

2204. The physiological or general laws of localities must be deduced from the six elements which constitute the animal.

Three of these are subjective: 1° the feeling of continuity, 2° the feeling of excitation, 3° the individuated feeling.

Three, corresponding to these, are extra-subjective: 1° continuous matter, 2° the inner movements of it, 3° the constant harmony of these movements, a condition of which is organization.

2205. The animal principle is the active part of the continuous, excited and individuated feeling; but its action is conditioned by its term, that is, by the body.

If we consider merely the continuity of the feeling apart from excitation or external stimuli, we shall have a uniform fundamental feeling of continuity without distinction of places or parts, and, therefore, without figure. In this feeling measured space, extra-subjective extension, does not yet exist, the animal does not yet exist, but only one element of it, the animate.

With excitation there begin to arise in the feeling, localities, figurate limits: the excitation however is not harmonious and individuated without the organization of the body which is the term of the feeling.

2206. Hence the first cause of localities manifesting themselves in the feeling is an extra-subjective principle, that is, the extra-subjective part of the organization and the stimulus applied to it.

Since all the parts of the organization are not equally felt nor equally sensitive, it follows that there is a difference of vital action in them; and this is a cause of locality.

The stimuli which are applied to the organization and promote the activity of the instinct, are not applied to all parts of the organization equally, but to certain determinate parts; and this is another cause of locality.

2207. Hence proceed these consequences:

1° The sentient principle has a kind of sphere limited by the extension of the felt; but this sphere is not itself felt or determined in the feeling, so long as the feeling is uniform, that is, one of continuity;

2° The action exerted by the sentient principle is pro-

portioned to the felt. If, therefore, in the sphere of the felt, the quality of the feeling and the degrees of its intensity vary, the action of the sentient also varies proportionally in the different parts of the felt sphere. There is then variety of feelings and instincts, but there is yet no feeling of limits, and therefore none of the extra-subjective figures of these different feelings;

3° When foreign bodies act upon the surfaces of the felt body, there begin surface sensations, through which the sentient principle feels the limits and the figures of the sphere of its own felt, and at the same time of the external bodies;

4° The sentient principle, receiving its first impulse and first determination from the stimuli, continues the movements once begun, through its own spontaneity, whose laws have been indicated by us, and may be thus summed up:

2208. (a) The amount of spontaneous action put forth by the sentient principle, or the instinct, is exactly in proportion to the facility and delight which it finds in acting rather than not acting. This law determines the *quantity of its action*;

(b) Its *mode of action* is, that it devotes the whole quantity of the action put forth by it to perfecting the state of animality in its three elements; in other words, to extending the sphere of the felt, to increasing the excitation, and to maintaining harmony and unity in the feeling itself, and, consequently, to maintaining the organization;

(c) This tendency of the spontaneity of the sentient principle to devote the whole of its own action to the perfecting of the animal in its three elements (extended, excited, harmonious felt) may be opposed by the extra-subjective principle, and then there arises irritation, the cause of diseases, which is nothing else than the force of spontaneity itself turning to do battle with what is injurious to animality, for the same reason which makes it essentially tend to perfect this animality.

2209. When the spontaneity of the sentient activity seeks to increase feeling or to repel what opposes it, it

then brings into action all those organs, and performs all those movements which may lead to this end. But the aim which it seeks to reach is sometimes local, and to arrive at this, it is obliged to set in motion organs and parts occupying other localities. These different parts, occupying places different from that to which the animal activity refers as to its proper aim, are exactly the seats of what is called sympathy.

2210. But inasmuch as the sentient principle is always in activity, as indeed it must be for the preservation and perfecting of the animality, it sometimes contracts certain habits, accustoms itself to move certain organs simultaneously, in order to obtain a given result which is often necessary to it. If, after this, it happens to wish for an effect the attainment of which requires the motion of only one of those organs which it is wont to move together, it then moves not only the organ necessary for the effect, but likewise the others which it is wont to move at the same time; and it does so from habit. The reason of this is, that the act of the sentient principle is simple, so that it moves several organs *per modum unius*, to use a scholastic phrase. The act, moreover, whereby it moves all those organs together is different from that whereby it would move only one of them. Now the performance of each different act must be learnt by the sentient principle through experience. Accordingly, it may be more easy and pleasant for it to seek the effect in question by the act whereby it moves several organs (though some may be moved to no purpose), than by the act whereby it would move only one, the one that was necessary. This certainly happens if the principle has learned to perform the first of these acts, but not the second, or if it can perform the first more easily than the second.

2211. As the feeling of continuity, the feeling of excitation, and the feeling of unity and harmony are the three general modes of feeling, and all varieties belong to one or other of these; so the activities of feeling may likewise be reduced to three principal ones corresponding to

these three modes. The excited feeling contains the continuous feeling, of which it is but a higher power; the feeling of unity and harmony contains both the feeling of continuity and the feeling of excitation, being but the perfection of the latter.

The intellective soul can unite itself only to the feeling of unity and harmony, and, through it, to the feeling of excitation, and again through the latter to the feeling of continuity.

Hence man has all these three feelings, but the only object of consciousness is the feeling of unity and harmony, which is the foundation of animal individuality.

2212. It seems to me that by meditating on the relations of these three modes of feeling we may account for the localization of sensations. I feel in my hand a pleasant or painful sensation; the movement with which this local sensation is bound up is certainly not limited to the nerves of the hand, but belongs chiefly to the brain. If there were no movement in the brain, the hand would experience no sensation. I ask then, why does a sensation in the hand require movements in the brain, which are not felt in the smallest degree?

This inquiry contains two questions: (1) Why cannot I have a sensation in one of my hands, when it is pricked with a needle, unless the nervous movement be continued to the brain? (2) Why, and how do I feel the pain of the prick in my hand, and not in the brain or along the arm through which the movement of the fibres is continued? The latter is the question of localization.

The former question has been answered elsewhere. Here it will suffice to observe that if the nervous movement were interrupted so as not to reach the brain, it would lose its harmony and unity with the entire animal feeling, just as if an arm were separated from the body; and we have said that the intellective soul can unite only with the feeling of unity and harmony; and, therefore, without this, it cannot have consciousness of any feeling.

2213. The latter question, that relating to the localization of feeling, requires more detailed explanation.

Locality begins to be felt when we perceive our body as a solid, limited, figurate space.

But we perceive our body as limited and figurate only through the extra-subjective experience whereby we perceive its surfaces.

In other words, the [fundamental] *felt* gives neither figure, place nor parts to our body, but gives only the *perceived*, viz., that extra-subjective force which makes its action felt in the [fundamental] felt itself.

This extra-subjective experience represents the body to us in a purely phenomenal way, as what we have called the anatomical body, which is something very different from the real body which is directly felt (the fundamental felt). Indeed there are some apparent disharmonies and contradictions between the two.* Localities, therefore, belong to the body as perceived in an extra-subjective and phenomenal way. But after we have thus perceived localities in the extra-subjective body, we apply them to the subjective body; we take as the rule of our thoughts and actions the extra-subjective body, though phenomenal, instead of the subjective, though real. How then, do we refer our subjective sensations to extra-subjective localities?

The local, anatomical body is the body as we see it, touch it, taste it, &c.; it is the compound made up of all these our sensations. These sensations give us the figure of the body, and the figure of this and of its parts† is what constitutes for us its *image*; and this image becomes the

* See *New Essay*, &c., where we have spoken of the *natural disharmonies* between the two modes of perceiving our bodies, Vol. II, 983-987.

† The *parts* of our body here referred to are always superficial and external. This, however, does not mean that we do not also form the *image* of those parts which we call and suppose to be internal. Of course we form such images by means of the section of bodies. But it must be carefully noted that in order that the supposed internal parts may

fall under our senses, the bodies must be cut asunder; which is the same as saying that the parts which we really imagine are always external and superficial parts, rendered such to us by cutting before we can perceive them. It is true that afterwards the imagination fancies them as internal; but it can do this only on condition of picturing them to itself as superficial; in other words, such as they were seen, touched, &c., when they were laid bare and showed their surfaces.

matter of the vulgar and common idea of our body, according to which men generally speak and act. Localities are referred to this imaginary figure, which is a part of the manifold sensation we have of the external universe.

Localities, therefore, relate to this body, so perceived in our sensations and contemplated in our imaginings. The parts of it are, as it were, drawings formed in our external sensitivity; this sensitivity it is that co-operates to form them for us, for our cognition.

After the parts are formed and figured by means of our extra-subjective and superficial sensitivity, we can refer to them and locate in them even our internal sensations, although these have neither surfaces nor any discernible figure. When, for example, we say we feel pain in a foot, what else do we do but locate that pain in the part called *foot*, which has been represented to us by extra-subjective perception, and is enclosed by surfaces perceived by us as constituting its form? To locate an internal sensation, therefore, in any part of our body, is nothing but to perceive the relation existing between subjective and non-figurate sensitivity, and extra-subjective and figurate sensitivity. If the latter had not drawn out the form of a foot for me, I should never be able to locate in my foot the pain which I feel. I could neither tell nor think what the foot that pained me was. The word *foot* would not have been invented, nor would my mind possess the concept which that word signifies and which it derives from the external sensitivity.

But when I feel an internal pain, why do I locate it, say, on the right side of the foot rather than on the left?—Undoubtedly, I pronounce this judgment by comparing the sensation in question with other sensations received in the foot. Having already the outlines which mark out the solid figure of the foot for me, and having thus conceived the foot as solid, if in this solid I conceive several sensations, it is no wonder that I can recognise one of them as nearer than another to a given extremity of the foot. In order to do so I have only to compare the different sensations with

the extremities of the foot and with each other. The more sensations I conceive as possible between the particular one and that which is marked for me by the extremity, the farther I judge that sensation to be from the extremity. Nevertheless, these judgments regarding the localities of internal sensations are uncertain, inaccurate, and very frequently fallacious.

The locality, therefore, of internal sensations is merely a relation between them and surface sensations.

But how are these extra-subjective and superficial sensations to be explained?

That sensation should be extended over a surface is a consequence of the manner in which excitation is produced, and which we have already described. Excitation takes place when the animal molecules rub against each other, and this rubbing extends only to surfaces, because bodies are impenetrable. If the minute surfaces of the molecules in which excitation takes place form a large surface by their juxtaposition, then there is a large surface sensation more or less distinct, as is the case in the external and internal walls of the body. But if the excitation takes place in a group of molecules which are not so continuous as to form a single surface, and these molecules rub against one another with all their faces, then there arises a confused sensation in which no determinate figure is discernible, as is the case with so many internal feelings. Hence, we do not feel in any of the feelings of excitation a true solid, because the inside of the molecules is felt only with the feeling of continuity; and this accounts for the fact that the sensible pleasures and pains which take place within the body always remain, as far as their continuity, extension and figure are concerned, without precision or distinctness.

The only question, therefore, that remains is, how the sensible surfaces belonging to us come to be located by us in a solid space, or united so as to form a simple surface surrounding a solid with all the sinuosities and projections which belong to the human body.

In order to explain this, it must first of all be granted that immeasured space is given by nature to the sensitive soul. Without this admission it would be impossible to explain either this or many other facts and laws of nature.*

Furthermore, it must be remembered that if a human being, remaining motionless, should be touched equally and at once in all parts of his body, he would not yet perceive his body as a solid space, nor distinguish when the surface sensation made a curve inwards or a curve outwards. In a word, without motion man cannot perceive the solid, because solidity enters into feeling only in so far as active movement enters into feeling.†

The movement of felt surfaces, therefore, which is itself felt, the stages through which it passes and which mark time and comparative velocities, all this makes the human being locate his own surface sensations in determinate places of solid space, and so at last compose the perception of his own body as a perfectly outlined solid.

During the time that he is performing this operation and producing for himself the solid and figurate perception of his own body, he is also measuring the space of the external world and acquiring a perception of the solid figures which it contains. All this he does by means of sensible movement.

Assuming, then, these products of our external sensitivity, we may advance a step toward the solution of the question of localization. Indeed, supposing, as we have done, that we receive a prick in the hand, the sensation of this prick, when isolated and considered by itself, has no locality of any kind; it is neither in the brain nor in the hand, which in this case do not exist for us. It is only when we have perceived our body as a solid clothed with felt surfaces that we locate the prick in the hand, in the extremity of the nervous fibre. The thing seems to take place in this way: We have perceived the needle that pricked us; we have observed that when a needle is driven into the hand pain follows, that when we draw out the needle,

* See *Anthropology*, 162-174. † See *New Essay*, &c., Vol. II, 838-840.

the pain sensibly diminishes, that it increases when the wound is touched, and ceases when a remedy has been applied to it. We, therefore, unite the pain with the cause which produced it and takes it away. But the cause that produced it, as well as that which takes it away, are perceived by us through extra-subjective experience, and hence have localities determined by the extra-subjective sensitivity. Hence it is that we assign to the pain, which is a subjective phenomenon, the same locality as we assign to its extra-subjective cause. And this we do very readily, because pain, not having by itself any locality, does not refuse to receive whichever may be given it. It does not, as we have said, exist in the hand any more than in the brain, because *brain* and *hand* are words expressing extra-subjective solids. But the human spirit has no reason for uniting the extra-subjective locality of the brain with the pain, because the brain does not produce pain as a foreign force, such as alone has locality, but by a subjective organic movement wherein locality does not appear. On the contrary, it has a good and natural reason for associating the pain with the extra-subjective and foreign cause; and since this has locality, it adds this locality to the pain itself. Properly speaking, therefore, it is not the pain that is added to the locality, but rather the locality that is added to the pain, and that, so to speak, clothes it with itself.

2214. The result is that, in proportion as we have a distinct *perception* of that part of the body to which the cause of sension is applied, we attribute to this cause a distinct locality; and conversely, sension is all the less localized, the less we perceive the locality of its foreign or stimulating cause, that is, the part of the body to which it is applied. Hence, we do not locate the sensations of the eye distinctly in the retina; because we have no such distinct extra-subjective perception of the retina as we have of the skin, for the reason that we cannot *touch* either the retina and completely distinguish its parts, or the light, which is the foreign stimulus, and distinguish its parts. The sensations of the eye, therefore, remain for us, as it were, in the air; that

is, they are not distinctly located in one part of the body, until by means of touch we assign them a place. And after all, we do not assign them a place in our own bodies, but where the sensiferous cause of the touch is; in other words, in the bodies which we touch. In the same way, we do not assign to images a place in the brain, because we have no extra-subjective *perception* of the brain and its parts, and cannot extra-subjectively perceive the internal cause which moves it and produces the images, this cause being organic but not sensiferous. The images, therefore, hang in the air for us, or, to speak more correctly, they are for us like so many external bodies. They are sensations which we locate where we located them at first when we received the corresponding sensations through our external sensitivity.

2215. There remains the question of the extra-subjective cause of pain. Why does the organic vital force present no figure in our feeling, and on the other hand, why does the foreign sensiferous force mark a figure in it and so give rise to locality?

Many writers have striven hard to describe the extra-subjective phenomenon of sensorial motion. The following conjecture seems to me probable: Sensorial movement requires molecules organized in a certain way, and consisting of elements of a certain number and quality. These molecules form a *continuum*, whether fluid or consistent it does not matter.* Their elements are extremely mobile and so harmonized, that when any of them separate from one molecule, they go to compose the following one, which sets so many other elements at liberty. These latter elements, in their turn, unite with those of the following molecule, which also decomposes in the same way. Thus the decompositions and compositions go on

* Alexander von Humboldt (*Observations sur l'Anguille Électrique; Recueil d'observations de Zoologie et d'Anatomie Comparée. Par A. de Humboldt et Bonpland*) thought he had proved by experiment that there is a sensible atmo-

sphere round the nerves and muscles. But, even if this atmosphere exists, it does not seem to be proved that it is *sensorial*, but only that it is capable of stimulating the sensorial organ which it envelopes.

through the whole nerve and on to the brain, where the last elements that remain free, finding no other molecules with which to unite, return to embrace the molecule to which they at first belonged, and so there follows, in the opposite direction, the same series of compositions and decompositions, restoring the nerve to its previous state. Granting the existence of this chemico-organico-animal action, its results would be as follows :

1° The phenomenon of sension would take place when the decomposition ran through the whole of the sensorial organ ;

2° The sension would cease as soon as the molecules were all decomposed ;

3° Since the first molecules would remain decomposed longer than the others, there would be an analogy between the extra-subjective phenomenon and the sension, making it more easy to attribute a locality to the latter. This would be all the more the case inasmuch as the intermediate molecules, decomposing and composing themselves with rapidity and continuity of parts, could always maintain their position, continuity and figure, since one element would enter them just as another went out ;

4° The extra-subjective phenomenon would thus be an oscillation of the entire sensorial organ—an essential condition, it seems, for the individuation of feeling, without which man cannot become conscious of it ;

5° Just as, when the decomposition of the sensorial molecules begins at the outer extremity on account of some stimulus, the external molecules remain for some time decomposed and there is sension ; so, if the decomposition begins at the centre, that is, at the brain by virtue of the animal instinct, the decomposition of the particles at the inner extremity lasts for some time and produces an image. This image, properly speaking, has no locality, because the interior of the brain does not lend itself to extra-subjective experience, as the superficial external extremities of the body do ;

6° In the place where the sensiferous stimulus is applied

and decomposition begins, there is violence, because the first decomposition does not occur through the spontaneity of the instinct, but is due to the external force. On the other hand, the successive compositions and decompositions would take place without any violence, through the spontaneity of the instinct. Accordingly, the violence must be felt only at the beginning, and not afterwards in the successive movements, although these are necessary to render the sension of the violence *individual*.

2216. This hypothesis, according to which the elements of the sensorial molecules undergo an internal displacement without becoming disorganized, would explain why the sension exists exactly where the stimulus is applied; although this stimulus does not for that reason alone become a locality with relation to other parts of the body, unless we perceive these also in the same way, and compare the *here* of the one with the *here* of the others.

The displacement, therefore, of the elements of the sensorial molecules is what gives to *sension* all that is required in order that it may be referred to a locality in the extra-subjective *extensum*. The reason is because the sensorial molecules themselves, the nerves and the brain, of which we speak, belong to the sphere of the extra-subjective. Hence, when we say that the elements of the molecules remain displaced, for example, at the extremity of a nerve, we simply mean that they are displaced and felt at that extra-subjective spot which we call the extremity of a nerve.

2217. But what is meant by *sensorial molecules* in this case? Why is it necessary that the molecules throughout the whole extent of the nerve and those last ones in the brain should undergo the motion and change of elements which we have described?

We have already said that the answer to this question must be looked for in the *individuality* of the animal. The animal can feel only what enters into its individuality. This individuality, in the subjective order, requires a single feeling which must be the seat of all the others.

This single feeling implies a single sentient principle and a single felt term. The felt term, in so far as it is a continuous felt, is one if it has no interruptions; but in so far as it is an excited felt, it must have a harmonious unity of movements virtually containing all accidental sensations, so that it is always the same feeling, though in different modes.

Now this subjective phenomenon of a harmonious feeling of excitation is matched in the extra-subjective sphere by the organization of the brain with its nerve-ramifications. As we have already said, the cause of this correspondence is beyond our power to discover, because all that we perceive extra-subjectively is a mere phenomenon beyond which we cannot go. All that remains for us, therefore, is to verify and describe the fact of the organization, as something that corresponds to that individual sensitivity which is observable in the perfect animal, not to say in man. This is the ample and most delicate task of the physiologist.

And although man's consciousness of his own individuality is due to his intellective principle; still the brute also is an individual. Its individuality consists in this, that all its sensations belong to the same sentient principle; in other words, the activity which acts in every sensation in order to produce it, is always the same;* since that to which this activity does not extend is by the nature of the case outside of the individual. But to this active sentient principle there corresponds in fact, in the sphere of the extra-subjective, a harmony of movements all referring to a kind of common centre, as we have elsewhere explained.

* Sensation does not arise without an act of the soul. To this activity we have given the name of *vital instinct*. In the extra-subjective order such activity manifests itself by movements in a continuation of parts, although in the subjective order of excitation there correspond to it a sensation, and a function which is performed only in one of the extremities of the parts moved. Dr. Gall seems to have proved that the cerebellum is the organ of physical love

(*Exposition de la Doctrine de Gall, &c.*, par J. B. Nacquart, chap. x). Now this means nothing more than that to this class of sensations there corresponds a series of movements that go from the generative organs to the cerebellum and *vice versa*; and this, I may remark in passing, confirms what I have elsewhere said regarding the intervention of the sensitive soul in the act of generation (See *Social Right*, 1056-1060).

2218. Summing up, therefore, I say:

1° Neither the fundamental feeling nor the sensations have locality;

2° Among the perceptions of the foreign force (of external bodies) there is a class of *surface* perceptions, perceptions of a superficial space;

3° These superficial spaces have no locality if they are considered in relation to the sentient principle; they cannot be said to be either inside or outside of it, near to or far from it; because it has no place, and hence no local relation to it can be thought;

4° But these spaces unite and become continuous, and then they acquire a *relative locality*, in other words, one of them, or a part of it, is on this side, on that side, &c., of another that is continued with it, or with a part of it;

5° When active movement is added by man, then these surfaces, likewise moving in all directions, give man the feeling of a determinate solid space. The continuity of surfaces on all sides, together with motion, makes man perceive his own body, external bodies, measured space, and hence causes,

(a) The parts of his own body to have a place, a locality with relation to the body that has become for him a solid extension;

(b) This solid extension at the same time to acquire a locality with respect to all surrounding bodies, and

(c) With respect to every point imagined in space.

6° In this way are created in the human feeling the solid body, localities and external spaces. After this, every subjective sensation is assigned to one of those localities determined in extra-subjective extension, and this is done by means of the extra-subjective perception of the external and violent cause of the sensation. Inasmuch as this cause is a sensiferous, a foreign body, and is localized when it violently produces sensation in one point of our extra-subjective body, we localize the sensation exactly in the spot where we have perceived that cause. Hence it follows, that when we do not extra-

subjectively perceive the cause of sensation, or the locality where it is applied (and we cannot supply it with our imagination), we can no longer assign the sensation in question to the locality of the cause. Such is the case with the sensations of the eye, or with internal sensations, viz., images. To perceive the cause of sensation (the external body which stimulates the sense) is to perceive the locality where the cause is applied;

7° If we seek for some general law determining this locality, we shall find that locality is determined by the two extremities of the nerves, the external, and the internal in the brain. This is probably due to the fact that in the sensorial movements those extremities suffer a violence which causes a physiological change in the composition of their sensorial molecules; whereas the intermediate molecules, although subject to a transmutation of elements, preserve intact their elementary composition, and the transmutation is spontaneous, not violent.* We shall find also that the centrality of the brain corresponds to the condition that feeling must be individuated, by contributing essentially to the harmonious unity of the fundamental feeling of excitation. The truth is, that in all sensations, the sentient active principle must be the same. It appears, therefore, that to the sentient principle, of whose activity the sensations are modes, there correspond, in the extra-subjective order, the motions of the brain, in other words, that this principle comes in to feel its activity when these sensorial motions take place. But these same *motions*, in so far as they have the nature of motions, do not come within *subjective sensation*, because such sensation has neither locality nor space of its own; and in case they could be observed, the observation would give an extra-subjective and nothing more.

* According to this hypothesis, there may very well be oscillation or frequency in the sensorial movement, which I think is most probably the case; it being perfectly allowable to suppose that there is

a frequent displacement and replacement of the elements composing the sensorial molecules of the said nerve-extremities.

ARTICLE II.

Pathological Localities.

2219. The explanation hitherto given of localities is derived from the nature of the animal: it therefore applies as well to the localities which manifest themselves in the human body in a state of health, as to those that manifest themselves in it in a state of disease.

Coming now to say something special with regard to pathological localities, we have merely to point out some accidents which, by determining the activity of the sentient principle in different ways, make it appear in one part of the extra-subjective body, rather than in another.

Let us place before us the body such as it has been made by man through the use of his external senses, such as all we adults represent it to ourselves, the body in which we all blindly believe, and on which all our ordinary reasonings respecting our body are based.

1° The first phenomenon that presents itself to us, on occasion, let us say, of a contusion in the arm, is that of pain, which, instead of making itself felt merely at the extremity where the violent cause was applied, is propagated along the whole nerve. Here we must conclude, that the violence of the displacement of the elements composing the sensorial molecules which make up the nerve is not confined to the spot where the stimulus was applied before it united with the spontaneous sensorial movement, but has propagated itself, and that decomposition and recomposition do not take place regularly in the nerve.

2220. 2° Another morbid phenomenon is the duration of pain in a locality.—When this happens, we must conclude that the decomposition of the molecules is continually repeated with an oscillatory disordered movement, more or less frequent. In acute pains we feel aching pulsations similar to those of the pulse; and these are

perhaps only violent oscillations of the elementary movements which record themselves in our feeling. To keep these oscillations going, the frequent throbbing of the blood must certainly co-operate, a fact which manifests itself most clearly in violent headaches, which are made up of a series of frequent blows, that seem as if they would split the head.

2221. 3° Pains transport themselves from one locality to another, not only in succession, as happens when inflammation propagates itself, but even by leaps.—Whenever a pain manifests itself in one place on account of a wound, an inflammation or something of the kind, the whole activity of the sentient principle, which struggles in the manner we have indicated, concurs to produce it in that place. But this universal activity of the sentient principle, roused to combat and producing the first local pain, operates in various ways in the whole body and alters it. Now this action on the whole body, and the alterations which it produces there, are determined, as far as their mode and effects are concerned, by the organization, which corresponds to the harmonious unity of feeling, and first by the nervous organization, then by the vascular organization, by the quality and quantity of the fluids, and finally, by the laws of the sympathies. For example, a violent pain will accelerate the course of the blood and produce fever, or it will even inflame the blood, by altering its composition.

For a pain to manifest itself in a given part of the body in consequence of another pain previously felt in another part, it is enough that, by the universal action of the sentient principle, the nerves be violently excited in the part in question, so as to cause a displacement of elements with a tendency to go outside their sphere. What is the itching which is felt in the nose when one suffers from worms? Merely a kind of movement in the nervous system propagating itself from the intestines to the brain and from the brain to the nose, but in such a way that it is only in this last extremity that that sensorial displacement

of the elements takes place, which, according to the hypothesis proposed above, occasions sensation.

2222. 4° Sometimes, when a pain occurs in one place, it occurs in many others.—The explanation of this is similar to that of the preceding phenomenon.

5° Sometimes a universal affection produces a local pain.—This is again the same kind of action.

6° Sometimes a pain is felt in one part owing to a disease in another part, where it does not cause any observable pain.—Baglivi, describing the case of a woman who suffered acute pains in one of her kidneys, tells us that in the *post mortem* examination the kidney in which she felt the pain was found to be in a healthy condition, whereas the other had a calculus in it. The animal principle acted in both kidneys according to that law by which, in symmetrical double organs, there is but one passion and one action. Yet, in the kidney where the calculus was, the sensation did not manifest itself in an observable way, perhaps because there it did not cause the displacement of the elements, being prevented from doing so by the diseased condition due to the presence of the calculus, which prevented the elementary oscillation, whereas in the other kidney this oscillation took place.

7° Sometimes there occurs alteration of the sensitivity, of the taste, touch, &c.—This, according to the hypothesis which we have proposed, implies a different composition in the sensorial molecules. If the sense be altered in quality, so that the taste of one substance, for example, seems the taste of another, it is probable that the elements have assumed a tendency to displace themselves in the sensorial molecule in a manner different from the usual one. If the alteration is merely in the degree of sensitivity without any variation in the quality of the sensation, the phenomenon may depend on the mobility of the said elements, as well as on the nerves being less protected against the stimulus. Women have been known who could not touch velvet without swooning; to such an extent did the sensation of the skin of the hand excite the sensitive principle, and, as

a consequence, act on the entire nervous and vascular systems.*

2223. 8° The ganglionic system may become capable of producing observable sensations.—The same thing is to be said of this phenomenon as of the preceding one. Whether the cause be alteration in the elementary composition, increased mobility, or increased communication with the cerebral and vascular systems, the ganglionic system is rendered capable of admitting the sensorial displacement of its elements, or acquires the opportune stimulus which it previously did not possess.

2224. So far we have spoken of the localities of sensations. Let us now speak of the locality of the morbid movements and phenomena which follow from them.

The localization of these morbid movements and phenomena may be explained in the same way as that of the sensations, because movements precede and movements follow sensations, so that movements and sensations are equally bound to localities. Now all morbid phenomena are either accompanied or constituted by movements.

2225. It appears that fevers of all kinds may be referred to one or other of these two causes: an affection of the nervous system, or an affection of the vascular system,† so, however, that when one of them is deranged, it never fails more or less to derange the other.

2226. Locality is determined by the original violent stimulus, and, hence, afterwards by the *sympathies*, which receive various modifications from the accidental varieties of the organic tissues and of the entire organism.

Sometimes the organ that suffers through sympathy is

* The minute movements of the capillary nerves of the skin may, each taken by itself, be natural and have nothing to do with any morbid and painful phenomenon; but the frequency and the multitude of such movements, when carried to the brain and accumulated there, may cause derangement in it, thus showing us once more how a merely physiological action may occasion very injurious and even fatal consequences. For example, tickling under

the false ribs or the soles of the feet may so act upon the brain as to cause delirium and death.

† Inflammations are the direct product of the vascular system, whereas mere irritations, muscular strength or weakness, lesion of the sensitivity and all the symptoms of the so-called nervous fevers, contagious diseases, &c., are directly due to an affection of the nervous system.

in a very bad condition, while that which was first irritated suffers but slightly. Thus cold, acting externally on the integuments, causes inflammation in the chest, intestines, bladder, &c.

ARTICLE III.

Therapeutic Localities.

2227. It would remain to speak of therapeutic localities, that is, of the application of different therapeutic substances to particular parts of the body, their action, and their effects on certain other parts, or on the general condition of the body; but their explanation depends upon the same principles that we have just set forth.

It is worthy of remark that medicines are seldom applied to the parts that are diseased; mostly they are intrusted to the gastric mucous membranes.

For this reason the localities to which they transmit the effect of their action are in great measure determined by the sympathies and by the causes above indicated that give to the sympathies this or that special and local direction, but chiefly by the nervous and vascular ramifications and the laws according to which these systems act.*

* We must carefully distinguish between *nutritive substances* and *therapeutic substances*. The administration of the former belongs to *hygiene*, that of the latter to *therapeutics*, both of them necessary to the medical art. If, therefore, certain substances have the effect of nourishing, what will be properly the effect of therapeutic sub-

stances? Setting aside the mechanical and chemical effects, we may say that their really physiological effect seems merely to be to *stimulate*. With one stimulus we try to correct and balance other stimuli; with one irritation other irritations, and so on. This is obtained in virtue of the laws of the zoetic course described above.

CONCLUSION OF THE WORK.

2228. Enough. This book on the laws of animality, in which so little has been said upon a boundless subject, will have seemed long to those, who, looking to psychology solely for a theory of the intellective soul, do not understand that this theory is conditioned by that of the sensitive principle. This truth we have tried to bring into clearness; but yet we do not feel sure that we have made it acceptable to all classes of persons.

Medical men, not without some reason, will upbraid us: "Why have you put your sickle in your neighbour's field? The result is that you have said many inaccurate and many erroneous things."—I can only beg their indulgence. To correct inaccuracies, to cancel errors, would be a most agreeable thing to me. Yet, even after all that, there might still remain something good, and the most learned, who are always the most indulgent, will perhaps gather it up. I will tell all the professors of the healing art, as well as all students of psychology, what my intention was. In modern times scientific men have divided man into two: some have undertaken to deal with spirit, others with body. Each of the two parties seemed to itself to possess the whole of the science, and combated and despised the other; and contempt, taking the place of reason, divided the two factions still further apart. What has been the result? Instead of one science of man, we have two, contentious, contradictory and utterly hostile to each other. The one, the less guilty, has made man a kind of angel, altogether spiritual, moving his body by a kind of miracle: the other has been left with matter alone, which, in its turn, by a much greater miracle, animates itself and is able to do everything that the spirit does.

To us it has seemed desirable that these dissensions should cease, and that man should recover in science the unity which he has in nature, but of which he has been deprived by imperfect and fallacious methods of study; the consequence being, that those who for the last two centuries have philosophised concerning man, have neither been able to agree nor to attain the desired knowledge of the human being. Indeed, neither the physicians' man, nor the man of some psychologists is truly the human being. The purpose of the present work seems to us to require no further explanation, and we hope that even those learned men who profess the healing art will not blame it. They will excuse what they find unskilful in our bold attempt in view of the goodness of the end. They will observe that by our excursions into the science so vigorously cultivated by them, we have tried (we do not say with success) to restore to it that honour of which it has so long been deprived, the honour of being the science upon which the science of the soul depends and of which it forms a large part; so that hencefore it may no longer be possible to reprove either the psychologist who goes deeply into certain physiological doctrines, or the physiologist or the physician who treats of the soul, as if each were making encroachments upon the other's ground. Man is one, the two sciences are one, and their reconciliation and union paves the way for the perfection of the one true science of man.

2229. The matters treated in this work, and especially in the last book, matters belonging to medicine, will perhaps draw upon me reprehension and blame from a still graver class of persons.—“Are such lay studies suitable for a priest? What business has a priest to lose himself in sciences so remote from the sacred teachings? To descend to investigations so low and marshy as compared with the towering summits of the Holy Mountains?”—I should have many things to reply, which cannot find a place in these last pages, which are meant to close the work, and not to open it to new subjects of discussion.

But what I have just said may perhaps suffice, namely, that the science of the human spirit has need of many doctrines relating to animality, since without them it would remain imperfect. Still more imperfect would be the science of animality separated from that of the spirit, inasmuch as it would then remain material; and should not the saving of this science from the ignominy of materialism be an object of desire, nay a part of the solicitude of Christian theologians? But even if there did not exist that necessity which is so evident for adding spirit to what modern physiologists and physicians would fain have us take for a mere piece of cunningly fashioned clay, I should not regret having indicated, or, at least, tried to indicate where modern medicine goes astray in the treatment of diseases; what errors of system so damage it as to make it miss its true purpose, of curing or, at least, lightening the infirmities of mortals. Not truth alone, but truth joined with charity, is the principal duty of the Catholic priest; and it is now a universal complaint, contradicted by no sage man, even though a professor of the art, that medicine has sunk to a most wretched condition. Indeed the ablest physicians of our day are just those who raise the loudest complaints against it, and it is only men of mediocrity that defend it. Who can count the thousands of persons who have been killed by the obstinacy of physicians in restricting the healing art to merely measuring the quantity of stimulus, and finding out whether it was in excess or defect, but taking no account of all the innumerable circumstances which render a stimulus opportune or inopportune? To this, in fact, we may perhaps reduce the chief difference that so widely separates modern from ancient medicine. The modern art boasts of the greatest simplicity, and asks but one question: "Is the stimulus too great or too little?" For not a few physicians this is the sum and substance of medical wisdom. Ancient medical wisdom began thus: "Art is long, life is short, time runs at precipitous speed, experiment is hazardous, judgment

difficult." So numerous were the accidents, so variable, so fugitive, so complicated, that it felt it to be absolutely necessary to observe closely and calculate carefully before concluding as to what was the most suitable mode of treatment in any particular disease. That now a voice should rise from the temple, and unite itself with so many others in calling for the reformation and restoration of an art, which, when it flourishes, saves many lives in danger, when it decays, drags many into danger and destroys many, ought not to seem a strange or unbecoming thing to any one who knows that the Christian priesthood was established to lighten all the ills of humanity, and to procure and increase all good things for it. To those who do not know this, and who, therefore, may be astonished and scandalized to see us plunging into medical studies for the purpose of bringing them back (though with efforts perhaps greater than our abilities) to that straight road from which they have wandered so far astray, we will say: We should care nothing for medicine, we should not devote to it any part of our brief time, were it not for the sake of one who pronounced this word: "Love one another," that One Who, alone among those who have utterance, knows how to speak clearly in the depths of the heart. No wonder that, after that solemn and efficacious word, Catholic priests write even on medicine. That word has made men do very many greater things, and many have been content to appear, and to be treated as fools rather than disobey that divine accent. Judge us so; that word compels us to accept your judgment in peace.

2230. But now, to conclude at last our long labour, and in some measure to sum it up:—The first and second parts of this work were devoted to the nature of the soul as a perfectly simple being and to the indefinitely manifold development of its wonderful activity. In the first part we saw that the soul is one in each man, that it is the simple principle of all human operations; that it is at once the substance and the principle of a feeling; that this sensitive and substantial principle is intellective;

that this intellective principle has an immediate and immanent perception of a living body; that by means of this immanent perception it compenetrates itself with the sensitive principle, the result being a single principle which is at once intellective and sensitive, with a double term of action, (1) the understood (ideal being), (2) the felt (subjective body), and in this way acquires the nature of a *rational principle*, in which the human being is posited in act. This rational principle perceives itself in ideal being, and so acquires consciousness. Rendered conscious, it expresses itself by the monosyllable *I*. Self-perception is the principle of Psychology, which, therefore, belongs to the sciences of perception. Psychology is found and developed by means of internal observation of what is contained, endures and changes in the *I* itself, and of the order in which the elements which constitute it stand to each other. No concretion of matter enters into the human soul, which, therefore, is spiritual. Its primordial term is [ideal] being, whose nature is eternal and infinite. Hence, although it may lose its corporeal term by what is called the death of man, because it separates the two parts of which he is composed, yet the intellective soul itself is immortal and is ordered with a relation to the Infinite Being. With this happy result we closed the first part of the Psychology.

We opened the second part by inquiring how all those activities of the soul which manifest themselves in its passions and actions lie from the beginning contained, and, as it were, asleep in its perfectly simple essence, and how they afterwards wake up and distinguish themselves from it. This inquiry obliged us to enter into some ontological questions which might have been greatly shortened if we could have referred to an ontological science already formed. But Ontology is just the science which of all others is as yet the most imperfect, while at the same time it is the richest. We found, then, in the simplicity of the soul a multiplicity, organized and harmonious, adhering to it as it were, but not penetrating it so as to break up its

unity and perfect simplicity. We saw that the soul, a single principle, is posited in act by means of a plurality of terms, which actuate it in different ways without, however, multiplying it, or making it cease to be identical in all its different acts, like, so to speak, the vertex and centre of several angles. In this way we found a means of reconciling multiplicity of aptitudes with simplicity of principle. Thereafter, from the consideration of these different terms we deduced the manifold human activities, powers and faculties, ordered and classified. But all these activities, in their operations, follow marvellous and constant laws, and, therefore, we did not hesitate to propel our little barque into the wide ocean of this new investigation. Wishing, therefore, to unfold and describe the laws according to which the human powers constantly act, here likewise we first of all looked for the first ground and origin of all these laws in the essence of the soul itself, and by degrees made them issue from it.

Finally, we added the last book, treating of the laws of animality, as an appendix, because these laws are not, properly speaking, laws of the human activity, but laws by which this activity is almost continually conditioned, and with which it is connected in a wonderful way.

2231. Now, what is the final purpose, what is the desirable effect of all these various sublime activities with which the human soul has been adorned by its Creator? What is the natural goal of its aspirations? What is the destiny assigned to it by Him Who gave it being? The answer to these questions must be the true and ripe fruit of the theory respecting the soul—a fruit which we have not yet gathered. Shall our long disquisitions, then, have led us to the gates of the garden without enabling us to enter it? Shall they have led us even to the foot of the lovely tree without making it possible for us to pluck the ruddy, juicy apple that hangs on it, the apple for whose sake we undertook our toilsome journey?—It must not be expected that a well-ordered science should show its profitable result before reaching its end; and of a truth, Psychology does not

terminate in the theory of the activities and laws whereby the soul developes and acts. From the very beginning we pointed out that the most important and noblest of all the things which it has to investigate is precisely the destination of the soul. Why, then, do we stop here? Why do we close this work before it has reached the term on which our eye was continually fixed throughout the whole of the long journey?—The reader, we believe, will not be dissatisfied, when he considers, that although we have given different titles to our several writings, and each of them shows a beginning and an end, yet they are all but parts or fragments of one and the same science, so that none of them is complete by itself; that philosophy is one, science one; that, therefore, if we break it up into a number of books and arrange it under different titles, this is done for the convenience of students, who might be frightened or wearied out by a very long, almost interminable work. If this be borne in mind, even the present psychological treatise will not seem imperfect or incomplete to any one who will take the trouble of supplementing it by the *Theosophy* and the *Supernatural Anthropology*—treatises which, if God will, and time favour us, we shall in due course communicate to the public. The first will pave the way to the second, in which we shall have to speak at length of the destinies of the human soul.

We have already mentioned why we have thought it advisable and even necessary to defer the discussion of this subject (49). The human soul is an intelligence, that is, its nature is such that the *object* by essence, eternal being, continually manifests itself to it, and by so doing, draws it into its act of existence. This most lofty essential relation, which from the side of the object is called *manifestation*, and from the side of the subject *intuition*, creates the intelligent soul, the intuiting subject. Fixed in being, which is eternal and divine, the soul holds there its natural seat. It is in being. Here we can see what amount of truth there was in the saying of Nicholas Malebranche, that God is, as it were, "the place of in-

telligences." This statement would express nothing but the simple truth if the illustrious philosopher who pronounced it had been able accurately to distinguish the concept of God from the concept of the divine. Inasmuch, therefore, as the intellective soul dwells in divine and eternal being, engrained in it, so to speak, but never confounded with it, it is plain that from the same being from which it originates and has its essence and existence, and can never entirely separate without being annihilated, it must likewise derive all its perfection and all its completion. This will appear all the more true if we consider that the soul, essentially intelligent, has no direct connection, or communication, with anything else. It communicates with all other things solely through the medium of the being to which it immovably adheres, and by which it knows; for unknown beings do not exist for intelligence. And the human person is an intelligence, so that the eternal being which naturally illuminates it, is, for it, the mediator which unites it to all things and all things to it. Consequently, the intellective soul, like every other created intelligence, has all that it has in this manifest and manifesting being, and receives all from it; this gives it all other things. Hence, it clearly follows, that the soul is not its own good; that its good is something different from it and dwells within the eternal object, within infinite being, within the light which makes the soul itself also light, gives it all that it can receive, acquires for it all that it can acquire. We cannot, therefore, discourse properly, and, in some way, adequately concerning the perfection and destination of the soul, without pushing our investigations further, boldly grappling with a more sublime argument, ascending even to the Divinity. We must for a time leave the soul, and after having, so far as it is granted to man, investigated divine things, and God Himself, return to it. How can the soul draw its own perfection from that divine being in whose bosom it perpetually dwells? Can it of itself draw this perfection? Is any new, marvellous, mysterious operation required on the side of that being

itself? These are all questions transcending the narrow limits of pure Psychology; and they suffice to show that this science, like all other human sciences, is, if taken by itself, imperfect, and cannot be perfected except by going beyond its own limited sphere, and uniting itself with other sciences nobler than itself, sciences which, leaving behind the created universe, find its Creator, Who is not only its beginning and cause, but also its end, its reason, its perfection, its eternal most sublime destination. For this reason we have considered it necessary to reserve what we have to say regarding the destinies of the soul for the *Supernatural Anthropology*, which is intended to form the last part and the glorious pinnacle of Psychology.

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APPENDIX.

A CRITICO-HISTORICAL SKETCH OF THE OPINIONS
OF PHILOSOPHERS ON THE NATURE OF
THE HUMAN SOUL.

ONE BOOK.

DEDICATED TO GIUSEPPE TOSCANI, PROFESSOR OF PHILOSOPHY
AT THE OSSOLAN COLLEGE.

PREFACE.

MY DEAREST GIUSEPPE,

1. From my earliest years I, as every man should do, have considered it a duty to devote myself to the discipleship, first of truth, and then of the common sense of men, all of whom, endowed with the divine light of intelligence, I felt deserving of respect. With this intent, I took pains to collect the opinions that had come down to us from times past, or were propounded in our own day, on such matters as are of greatest importance for right thinking and virtuous living. In doing this, I made it a rule to strive my utmost to get to the inner spirit of the views enunciated, rather than rest on the mere materiality of the expressions. Hence I found, to my great satisfaction, that as regards what is substantial and necessary, there was more agreement among men than appeared at first sight, sometimes more so, perhaps, than they themselves supposed.

Knowing, therefore, your devotion to the study of philosophy, and the value you set on that *dictum*, worthy of an oracle, γνῶθι σεαυτὸν, I send you a brief summary of the principal opinions of philosophers, and alike of peoples, on the nature of the human soul. I have added some observations of my own, prompted by a kindly feeling towards their authors, and by a desire to reconcile diver-

gencies. You will, I am sure, accept this small production as a token of my affection. Possibly you may even find it of some use in the duty you so assiduously discharge, of training the young in philosophical science; but in this I may be mistaken. If by reason of your erudition extraneous aid is unnecessary, my offering will at least procure me something from you in return of advantage to myself.

2. In recounting, then, the principal views and opinions known to have been held on the nature of the human soul, I shall take for my guidance the principle of the Eclectic School, "That all the errors of men have a side that is true and a side that is false, and that, while the true side is due to something observed by them in nature, the false must be attributed to something else that has escaped their observation." And as, in fact, where observation fails, the deficiency is instantly supplied by the imagination, it follows that, speaking generally, the true part in human thoughts will be found to consist in what they contain of positive, and the false in what they contain of negative, exclusive and arbitrary.

This principle cannot certainly be of avail (as the Eclectics erroneously suppose) when there is question of constructing a philosophical system. It is then sterile and illogical; and for a very obvious reason. No one can discern the true from the false unless he is already in possession of the truth; for it is only by comparison with truth that falsehood is recognised. But the principle is excellent when applied to the history of the opinions of philosophers, on the assumption, of course, that philosophy itself has previously been found and sufficiently established. In that case the history in question can be properly treated, inasmuch as we have then the standard whereby to pro-

nounce a fair judgment on the opinions under review, and, by this means, to reduce them to some sort of agreement, drawing from them, in all their variety and discrepancy, a single whole of marvellous unity.

3. As, however, it is to the opinions of the Ancients that I principally wish to refer, describing them rather as a philosopher than as an historian, I must first of all, observe that those of earliest date have reached us only in a very fragmentary form, like weather-worn and sparse remains of stately edifices. Moreover, we must remember that, as the faculty of analysis developed only in the course of ages, the ancient language in which these opinions were expressed was very synthetic in character. As a necessary consequence, the concepts were presented in a form as indistinct as they had in the minds of the thinkers themselves, and even more so. Hence it seems equitable to expect that discreet readers will not find fault with me for interpreting those concepts so as to educe from them a reasonable meaning, although I shall very often do this more by way of conjecture than of a decided pronouncement.

CHAPTER I.

THE PRINCIPLE ON WHICH THE OPINIONS OF THE
ANCIENTS REGARDING THE NATURE OF THE SOUL
MAY BE CLASSIFIED.

4. First of all, let me explain how I arrive at what seems to me a right principle to be guided by in classifying the different opinions followed by the Ancients regarding the nature of the human soul. All things in the universe are connected together like the links of a chain. The first link is matter, the second is the sensitive soul which feels and perceives matter, the third is the intellectual soul which perceives feeling, the fourth is the idea of being which shines to the intellectual soul and serves it as the means of knowing, and the fifth is God, the Absolute Being itself, the first and supreme origin of all the rest.

5. In this wonderful chain, which holds the entire universe suspended, as it were, from heaven, the intellectual soul forms the middle link, connected with the two first through feeling, and with the two last through the idea as well as through the influence of the self-subsistent Being in Whom the idea has its seat and eternal domicile.

6. Now, without doubt, those men who first put to themselves the question: "What is the soul?" had for the object of their attention and research the intellectual soul; because, whoever takes to reflecting on himself can only start from the *Ego* (*Psychology*, 69, 70); and in the *Ego* the intellectual soul is already contained.

But since, as we have said, this soul is the middle link between matter and feeling on the one side, and the idea and God on the other, and at the same time it cannot be

singled out in its own pure self, save by a mind already skilled in analytical attention and observation (an art which those primitive thinkers did not yet possess, as it is only acquired in course of time); it necessarily came to pass that this same soul was, in their minds, confounded with one or other of those four things which, though different from, are closely connected with it. Hence, four classes of erroneous systems, according as the nature of the intellective soul was referred to matter, to feeling, to the idea, or to God.

7. How, then, shall we be able to analyze and distinguish in these erroneous systems what truth there is in them? We can do so by considering that the authors of these systems observed correctly the things that are linked with the soul, though, at the same time, they overlooked the fact that those things were not the soul which they intended to define. In the first respect their opinion was true, in the second it was false. Their omitting to notice the *differences* between the soul and the things that are conjoined with it, became the source of all their errors. Such, indeed, is the ordinary mode in which the human mind proceeds: first it apprehends things as a whole, and then it distinguishes their several parts.

CHAPTER II.

FIRST CLASS OF ERRONEOUS SYSTEMS: THOSE THAT
CONFOUNDED THE HUMAN SOUL WITH MATTER.

8. The first free movement of the human mind began among the Greeks who had settled in Ionia, in Asia Minor: the first object that offered itself to the speculation of those thinkers was material nature.

This, naturally, would be the case. The first natural operation of human reason is the perception of bodies; the object of this perception, therefore, *i.e.*, the corporeal nature, must likewise be the first thing brought into the sphere of philosophic reflection.

9. The impulse and occasion of this movement came from the corruption of traditional truths, especially with regard to God, which had degenerated into myths and idolatry. Having lost the secure guidance of primitive revelation, inquiring men among the nations felt the need of seeking another guide. This they hoped to find in the free exercise of their own thought. Thus it was that man, who had, till then, been a disciple, undertook to be his own master.* Eastern nations, being near the source whence the primitive wisdom proceeded—and especially the Hebrew race, in which that wisdom was preserved incorrupt, and to which was safely committed the deposit of the positive oracles of God—did not feel this need in the same degree. For this reason, philosophy did not begin in that part of the world, or, at least, did not begin noisily and boldly; neither was it there that Dialectics—the fore-runner as well as the instrument of philosophy—was

* The Italic School nevertheless did not omit to avail itself of the primitive tradition also; because Italy has always been a religious and, I would almost say, a sacred land (See *New Essay on the Origin of Ideas*, 276).

reduced to a rigorous science. On the western border of Asia, the echo of tradition having become evanescent and confused, the human individual, partly from that uncertainty, and partly also from the absurdity of the generally received doctrines, fell into a state of bewilderment; and it was in view of escaping from this state, that he threw himself upon the resources of his own reason alone. Divine Providence, in its high counsel, permitted this great evil in order that science might be created.

10. But neither those who first began to philosophize, nor those who came after them, could all at once transport into the order of science, into the field of individual reflection, all that they knew by direct and popular knowledge.* The first thing, therefore, which they submitted to reflection and meditation were the external bodies. Thus originated the doctrine of the *elements*.†

11. I. Thales (a. 600 B.C.) and Pherecides placed the principle of all things in water. Hippo of Rhegium made the substance of the soul to consist in the genital humour, which he therefore regarded as endowed with life.‡

Undoubtedly, these philosophers found this principle in the tradition that all matter had been originally created in a liquid state, and that all things came from liquid. Suidas, Eustathius, and others certify that Pherecides had access to certain secret books of the Phœnicians. Hernius

* On the important distinction between direct and popular knowledge and reflex and scientific knowledge, see *New Essay on the Origin of Ideas*, 1264-1273.—TRANSLATORS.

† By the term *element* the Ancients meant that which is unchangeable in things; in other words, their *substance*. But inasmuch as many of them gave their attention almost entirely to material things, it came to pass that they, for a long time, treated of no other than material elements, as Aristotle informs us. "Very many of those who were the first to philosophize considered as the sole cause of all things those principles which are within the species called matter. For they say that the

element and principle of all beings is that by which they exist, and by which they are first formed, and to which, becoming corrupted, they are at last reduced; their substance remaining, while they, through the passions to which they are subject, change [from one state to another]" (*Metaphysics*, Book I, c. iii). Nevertheless, it would seem more in accordance with truth to say, that those thinkers gave to the spiritual elements but little reflex attention, than to say that they denied them; because, as a matter of fact, Thales joined spirit to water.

‡ Aristotle, *De Anima*, L. I, and L. II.—Hermias, *Philosophorum Irrisio*, L.

proved that these were the Books of Moses.* Thales, who was of a Phœnician family and, therefore, of a neighbouring nation to the Hebrews, may have been confirmed in his opinion by observing that all generation begins from liquid, and that even food, in order to be assimilated with the living body, and acquire the same life with it, must become liquid. Such is the conjecture of Aristotle. "Perhaps," he says, "the reason why Thales held this opinion, was because he saw that liquid is the nutriment of all things, and that heat itself is produced by liquid, and that the animal lives by it. Hence, he inferred that liquid is the principle of all things." Then in support of his conjecture he appeals to older traditions: "There are some who think that this way of opining about nature was adopted also from times immemorial and most remote from the present generation, by those who were the first to THEOLOGIZE. For they proclaimed in their songs that Oceanus and Thetis are the authors of generation, also that the oath of the Gods is by the water which the poets call Styx. For, that is most worthy of veneration which is most ancient; and nothing is more so than the oath. Whether, therefore, that opinion about nature did obtain from a most remote antiquity, is not quite clear; but it is said that Thales expressed himself about the first cause in this way."† (*Metaphysics*, Book I, chap. 3).

* In a dissertation inserted in the *Mémoires de l'Académie de Berlin*, in 1747.

† Who are these most ancient *theologizers*? Cardinal Gerdil explains it as follows: "Alexander thinks that Aristotle meant Homer and Hesiod. St. Thomas and the Doctors of Coimbra, on the contrary, incline to the opinion that he meant Orpheus, Musæus, and Linus, who, besides belonging to a very remote antiquity, were also called Theologians *par excellence*, because in their poems they treated expressly of divine things. The probability is that Aristotle meant all these together. In fact, when he speaks of the theologizers as having made Oceanus and Thetis the authors of generation, he evidently re-

fers to Homer, who, in his most elegant episode of the 14th Book of the *Iliad*, v. 201, makes Juno say the very same thing: Ὠκεανὸν τι, θεῶν γένεσιν, καὶ μάλιστα Τηθύ. Hence Plutarch (*De Placitis Philosoph.*, L. I, c. 3), after describing the opinion of Thales in the same way as Aristotle, observes that Homer also supposes generation to come from water; and in proof of this he quotes the verse (246): *Oceanus, qui omnibus origo est.*—Diogenes Laërtius, in his preface, informs us that Musæus was believed to have been the first who formed a Theogony and a Sphere, and who said that all things came from one principle and resolved themselves into it again." (*Introduzione allo studio della Religione*, P. I, L. I, c. i, § 2.)

That Thales took from sacred tradition his belief as to water being the origin of things, seems to be confirmed by the fact that to water he joined *spirit* (*voûs*) as the motor-principle. This spirit is also referred to in the most ancient of books, as that which "moved over the waters" (Gen. i, 2). With this agrees also the pagan tradition recorded by Probus in the following sentence: "Omnem hanc rerum naturæ formam tenui primum ac inani mole dispersam refert (Virgil and Orpheus) in quatuor elementa concretam: et ex his omnia esse postea effigiata. Stoici tradunt, Zenon Citicus, ac Speusippus Soleanus et Cleantes Assius, qui principem habuerunt Empedoclem Agrigentinum" (*Ad Virgil Ecl.* vi, v. 31).

12. As regards Hippo, Aristotle places him among the vulgar philosophers. He says: "Some of the more uncultured, as, for instance, Hippo,* affirmed also that the soul was water. And it seems that they were led to this persuasion by considering how things are generated; for this takes place by means of humidity. Hence they reprehended those who had maintained that the soul was blood; because generation is not caused by blood. The *first soul*, therefore, was said by them to consist of water" (*De An.* L. I, c. ii).

13. II. Aristotle says that in the Orphic verses man is represented as drawing his soul from the universe by respiration (*Ibid.*). Afterwards, Anaximander, a contemporary of Thales, Anaximenes (B.C. 557), Anaxagoras† (B.C. 440), Archelaus‡ (B.C. 460), and Diogenes of Apollonia (B.C. 460),|| placed, in one way or another, the nature of the soul in *air*, that is to say, still in a fluid, so that they did not differ very materially from the former thinkers. Amongst the Romans, Varro, following this

* In the first book of the *Metaphysics*, chap. iii, Aristotle, after speaking of Thales, says: "No one will think for a moment of associating with this philosopher a man of so simple a mind as Hippo was."

† See Plutarch, *De Placitis Philosophorum*, L. IV, c. 3.—Also Stobæus.

‡ Theodoret, *Græcar. Affect.*, Serm. v: "Anaximenes, Anaximander, Anaxagoras, et Archelaus aërem dixerunt animæ naturam."

|| Stobæus, *Eclog. Physic.*, L. I, *De Animæ Natura*.

latter opinion, defined the soul thus: "Anima est aër conceptus in ore, tepefactus in pulmone, fervefactus in corde, diffusus in corpus."*

14. This opinion was evidently suggested to these philosophers by the observation of the phenomenon of respiration. Cicero writes: "Animum autem animam nostri declarant nominari. Nam et agere animam, et efflare dicimus, et animosos, et bene animatos, et ex animi sententia: ipse autem animus ab anima dictus est."† Lactantius says the same thing: "At illi, qui ventum putant, hoc falluntur quod ex animo spiritum ducentes vivere videamur" (*De Opif. Dei*, c. 17). Aristotle, however, accounts for this opinion in a different way. He says that these philosophers took the most mobile and subtle of the elements‡ for the substance of the soul simply in order that they might explain the soul by means of the property it has of extreme mobility. To me this explanation, of which we find many similar examples in Aristotle, seems more systematic than true; or it may be one of those that are discovered posteriorly to the true one.

15. According to Pythagoras, "the soul is an emanation from the central fire, and a compound of hot and cold ether, which, though in itself susceptible of union with any body whatsoever, is obliged by destiny to pass through a pre-ordained series of bodies" (Diogenes Laërtius, L. VIII, c. 8). Nevertheless there seems to be no doubt that Pythagoras distinguished from this the intellectual soul, of which he had a far loftier idea, as we shall see in the proper place.

16. Heraclitus of Ephesus placed the principle of things in fire.|| Democritus maintained that the soul consisted of

* Lactantius, *De Opificio Dei*, c. 17.
† *Tuscul.*, L. I, c. 9.—See also Isid.

(*Orig.*, L. XI, c. 1); Nonnius Marcellus, c. 4; Heyne (*In Hænid.*, L. viii, v. 403).

‡ "Diogenes and many others thought that the soul was air; for they supposed that nothing was more subtle than air, and that it was on this account that the soul knew and moved. Its knowledge came from the air in so far

as it is the principle of the other things, and its movement came from the air in so far as it is the most subtle of all other things" (*De Anima*, L. I, c. ii).

|| It would appear that this fire, of which Heraclitus made the soul to consist, was incorporated with humidity; in other words, was VAPOUR. Indeed, the opinion that "the soul was vapour"

round atoms of fire;* so also did Leucippus (Arist., *De An.*, L. I, c. ii). The same opinion was held by Zeno and the Stoics, who followed him.† Macrobius attributes it likewise to Hipparchus (*In Somn. Scip.*, L. I, c. 14).

17. This opinion arose from observing the powerful effects, known also by the ancients, of caloric, especially in the form of steam, of the electricity diffused throughout all nature, and in particular of that caloric which is generated in the animal through respiration. For how long a period physicians continued to look upon caloric as the vital principle of the animal, I have shown in another place.‡

18. Aristotle, who in this matter does not seem to be as trustworthy an authority as one could wish—because he inclines to reduce the ancient systems to certain determinate classes fixed beforehand, and, for that purpose, appears sometimes to have recourse to forced interpretations—would have us believe that the opinion which placed the nature of the soul in fire found its explanation in the

is expressly attributed to him by Aristotle (*De Anima*, L. I, c. ii). Macrobius, on the other hand (*In Somn. Scipionis*, L. I, c. 14), says that Heraclitus the Naturalist, would have the soul to be *scintilla stellaris essentia*, and Stobæus, that "he ascribed to it the nature of light" (*Eclog. Phys.* I). Plutarch expounds the doctrine of this philosopher regarding the soul thus: "Heraclitus mundi quidem animam exhalationem esse dixit ex humidis illis corporibus quæ in illo reperiuntur; eam vero quæ in animalibus est illi congenerem similemque esse; eam nimirum ex exteriori interiorique exhalatione constare" (*De Placitis Philos.*, L. IV, c. 3). Diogenes Laërtius, however, says that "he despaired of the true nature of the soul ever being known for certain by any one" (L. VIII, 7).

* Plutarch describes the opinion of Democritus in these words: "Democritus igneam compagem ex partibus ratione (λόγῳ) solum conspicuis, sphericas quidem formas, igneam vero vim habentibus; adeoque illam corpus esse" (*De Placitis Philos.*, L. IV, c. 3). Hence Corsini says that Stobæus is wrong in giving αἰ τῶν λόγων θεωρεῖν.

† "Zenoni stoico animus ignis videtur" (Cicero, *Tusc.*, I, 9).—Plutarch (*De Placitis Philos.*, L. IV, c. 2) says that the Stoics believed the soul to be a hot spirit, and, according to Stobæus, πνεῦμα τοῦτον θερμὸν. Hence Hermias (*Philosoph. Irrisio*) attributes to the Stoics the opinion that the soul was air.

‡ Singular to say, this opinion met with the acceptance even of some ecclesiastical writers, as, for instance, Lactantius (*De Instit.*, L. II, c. x, xiii).—Hildegard, a writer of the 12th century, speaks of it and tries to prove it in his *Exposition of the Athanasian Creed*, as follows: "Anima ignis est, et ignis ejus totum corpus, in quo est, perfundit, venas scilicet cum sanguine, ossa cum medullis, et carnes cum livore, et inextinguibilis est. Et ignis animæ ardorem in rationalitate habet, qua verbum sonat. Quod si anima ignea non esset, frigidam coagulationem non perureret, nec sanguineis venis corpus ædificaret. Quia autem anima in rationalitate ventosa est, per omnia loca corporis calorem suum recte dividit, ne corpus exurat. Cum vero anima de corpore se extorserit, corpus deficit, quemadmodum ligna non ardent cum ardore ignis caruerint."

mobility and subtilty of this element. He brings all the ancient systems about the soul under three heads: 1° Those that define the soul by means of *motion*; 2° Those that define it by means of *feeling*; 3° Those that define it by means of something *incorporeal* (*De Anima*, L. I). According to him, therefore, the opinion which holds that the soul is fire would be due to an attempt to account for spontaneous motion. His words on the point are very clear: "Some say that, chiefly and primarily, the soul is that which moves. Now, considering that what does not itself move cannot move another thing, they concluded that the soul is one of the things that are self-moving. Hence Democritus says that the soul is a certain fire, or heat. For, inasmuch as there exist atoms of infinite variety of shape, those that are round he declares to be fire and soul; whereas the other minute atoms, such, for example, as we see floating to and fro in the air when the rays of the sun enter by the windows, are, in their motley mass, the constituent elements of all nature" (*De An.* L. I, c. ii). But in another place the same Aristotle derives this opinion from the popular one as expressed in the common language. He says: "These philosophers, therefore, follow names; so that those who say that the soul is heat insist on life being called ζῆν, while those who say that the soul consists in cold, by reason of respiration and refrigeration, will have it to be called ψυχάν," that is, air (*Ibid.*).

19. Nevertheless it is not certain that these ancients considered the soul as purely material. On the contrary, they seem to have spiritualized the elements, and especially fire, or, instead of the *soul* pure and simple (of which they had not as yet a precise idea), to have spoken of the living *conjectum* (*dell' animato*). To me it seems probable that crude materialism must be attributed to a baser and more corrupted period, such as the time of Strato and others who came after him.*

* Fuerunt qui, revocata Stratonis hypothesi, animam non nisi vim quandam materie cogitantem esse, vel spiritum materialem creatum dicerent "

(Bruckerus, *Hist. Philosoph.*, P. III, P. II, L. II, c. 3, § 6). In proof that some opinions of the Ancients that seem materialistic are not entirely so,

20. III. Aristotle asserts that philosophers have declared every one of the elements to be soul, save only the earth, which was never said to be soul by any one excepting those who looked upon the soul as compounded of all the elements together (*Ibid.*). This passage, if there has been no interpolation in it, throws a doubt upon the genuineness of the verse attributed by many ancient authors* to Xenophanes: Ἐκ γαίης γὰρ πάντα, καὶ εἰς γῆν πάντα τελευτᾷ.†

And yet Macrobius distinctly informs us that Xenophanes made the soul to consist of "earth and water," ‡ and his disciple Parmenides from "earth and fire." ||

21. Perhaps Macrobius applies to the soul what those philosophers had meant to say of man. I am led to this conjecture by finding in Diogenes Laërtius (ix. 30) that Zeno of Elea, a disciple of Parmenides, makes man to issue from the earth, and declares the soul to be a mixture of elements, namely, of cold and heat, of dry and wet, so harmonized together that none of them is predominant.

22. To make the soul the result, not of one material element alone, but of all together, and to place order and

the following might be quoted from Plutarch: "Democritus makes the soul a mass of ignited bodies *comprehensible by the mind*, of a spherical form, and with the power of fire, consequently a body" (*De Placitis Philosoph.*, IV, 3). It would be impossible to say more clearly that the soul is body; nevertheless, the declaration that the corporeal fire which constitutes the substance of the soul is comprehensible by the *mind*, clearly distinguishes the mind from the body, leaving the former incorporeal.

* Sextus Empir., *Adversus Phys.*, ii, 313.—Stobæus, *Eclog. Physic.*, i, p. 294.—Plutarch, *Homeri Vita*.—See Karsten, *Philosoph. Græcar. Veterum reliquiae*, *Xenoph.* rel. viii, where he writes: "Ipsa vero sententia 'Terram esse omnis naturæ materiam,' nisi latiori quodam modo accipiatur, a Xenophanis opinione et placitis prorsus aliena videtur."

† "From the earth are all things, and into the earth all are dissolved."

‡ Sextus Empiricus (*Advers. Physicos*,

I, 361; *Ib.*, II, 314), and Eustathius (*Ad. Iliad.*, v 99), attribute to Xenophanes a verse which says: "We are all born from the earth and from the water." Simplicius, likewise (*Ad Aristot. Physic.*, I, p. 258), and John Philoponus (*ad eundem*, i) quote another verse on the authority of Porphyry, who says: "All things that are made or born are from the earth and from the water" (τὰ καὶ ὕδωρ πάντα ὅσα γίνονται ἢ δι' ὕδωρ). (Simplicius, however, by mistake, attributes the verse to Anaximenes.) See the critical observations on these passages in Karsten, *Xenophanis Reliquiae*, IX and X.

|| Theodoret ascribes to Parmenides the opinion that the soul is fire, but not the opinion that it is earth. "Parmenides, Hippasius et Heracletus luculentam et igneam (animam) nuncuparunt" (*Græcar. Affect.*, L. V). Stobæus does the same: "Parmenides et Leucippus (animam dicunt) igneæ naturæ" (*Eclog. Physic.*, L. I).

harmony in them, is already a step forward in reflection. Reflection has already become aware that no one material element, taken by itself alone, can account for the operations of the soul,* and by having recourse to harmony it has begun to add to the concept of the soul *unity* and something *spiritual*, since harmony supposes a simple being which contains in itself the manifold. Celebrated among those who held this opinion was Dicearcus, of whom Plutarch says: "Dicearcus existimavit animam esse harmoniam quatuor elementorum." †

23. Aristoxenus, the musician, also supposed the soul to consist in a harmony, but it seems that he meant, not the harmony of the elements, but that of the organs and of the senses. Hence Cicero thus describes the opinion of this philosopher: "Aristoxenus musicus, idemque philosophus, ipsius corporis intentionem quandam, velut in cantu et fidibus, quæ harmonia dicitur, sic ex corporis totius natura et figura, varios motus cieri, tanquam in cantu sonos" (*Tusc.*, I, 10).

24. Now, it being still very difficult at that period to conceive this most noble truth, that harmony cannot exist except in a simple and spiritual principle, it came to pass that those who made the nature of the soul to consist in harmony, without understanding what was the seat of harmony, ended by declaring the soul to be nothing at all. Cicero tells us this when speaking of Dicearcus: "Dicearcus autem in eo sermone, quem Corinthi habitum tribus libris exponit, doctorum hominum disputantium, primo libro multos loquentes facit: duobus Pherecratem quendam Phthiotam senem, quem ait a Deucalione ortum, disserentem inducit, nihil esse omnino animum, et hoc esse nomen totum inane, frustra que animalia et animantes appellari; neque in homine inesse animum vel animam, nec in bestia: vimque omnem eam, qua vel agamus quid,

* Aristotle says that those philosophers who admitted one element only, derived the soul from it, but those who admitted several elements would have the soul to be composed of all of them (*De Anima*, L. I, c. ii).

† *De Placitis Philosophorum*, L. IV, c. 2.— Here Corsini notes that in Numenius the word *Dicearcus* is erroneously spelt *Dinarcus*, and in Theodoret (*Græcarum Affect.*, L. V), *Clearcus*.

vel sentiamus, in omnibus corporibus vivis æquabiliter esse fusam, nec separabilem a corpore esse, quippe quæ nulla sit, nec sit quidquam nisi corpus unum et simplex ita figuratum, ut temperatione naturæ vigeat et sentiat" (*Ibid.*). In this doctrine we see all the embarrassment of a man who is in error; for the philosopher referred to posits a force equally diffused in all living bodies, and inseparable from them (which doctrine would correspond in part with the *elementary soul*, sentient of space, of which I have spoken in the *Psychology*), and also a temperament of these bodies, namely, an organization (whence the *organic soul*, which is dissipated with the dissolution of the organism); and yet he says that the soul is nothing. His meaning, therefore, would seem to have been, that the soul was nothing apart from the body; and this would tend to show that he had caught a glimpse of the truth that the sensitive soul or sentient principle could not subsist without the *felt*, although at the same time his reflection had not yet progressed far enough to see the precise nature of the intellective soul, or to understand that the sentient (the soul) was not the felt (body).

Lactantius tells us the same of Aristoxenus: "Quid Aristoxenus, qui negavit omnino ullam esse animam etiam cum vivit in corpore? Sed sicut in fidibus ex intentione nervorum effici concordem sonum atque cantum, quem musici harmoniam vocant; ita in corporibus ex compage viscerum ac vigore membrorum vim sentiendi existere: quo nihil dici delirius potest:"* as if music were the thing which hears and not the thing which is heard, and in order to be heard has need of ears and of souls to hear by means of them.

25. IV. Lastly, there came the opinion that the soul consisted in some substance composed indeed of elements, but of a determinate kind.

And here we have, 1° The system of those who identified the soul with the blood, and amongst them

* *Instit.*, L. VII, c. xiii.

Critias.* As regards Empedocles, we shall speak of him later on.

26. 2° We have the system of those of whom Cicero speaks, thus: "Aliis pars quædam cerebri visa est animi principatum tenere."† This comes very near to the opinion of the modern materialists, who confound the soul with the brain, or with the nervous system; and even divide it according to the different parts of this organ and system.

* Arist., *De Anima*, I, c. ii. Nemesius, *De Nat.*, 4, p. 38. Theodoret (*Græc. Affect.*, L. V) says of Critias, that he affirmed the soul to consist *ex sanguine et humido*.
† *Tusc.*, L. I, c. 9.

CHAPTER III.

SECOND CLASS OF ERRONEOUS SYSTEMS: THOSE THAT MADE THE HUMAN SOUL TO CONSIST IN A MERELY SENTIENT SUBJECT.

27. I. As soon as it came to be understood that the material elements alone did not suffice to explain the operations of the soul, some other principle was added, without, however, the elements being on this account immediately abandoned. The addition showed, that reflection had reached up to something spiritual; but to understand that the newly-added principle must be spiritual for the very reason that it did not belong to the material elements, was not so easy a step, neither was that step taken all at once. By this new move reflection arrived at [animal] *Feeling*.

28. Plutarch describes the doctrine of Epicurus in these words: "Epicurus (B.C. 337—270) believed the soul to be a combination of four qualities, namely, the igneous quality, the aërial, the spiritual (windy), and another to which he gave no name, but which, in point of fact, was *sensitive*, that is, endowed with power to feel."* Stobæus, commenting on this doctrine, gives the following explanation: "Among these qualities, the spirit (or wind) generates motion, the air generates quiet, the fire produces the heat of the body, and, lastly, the fourth yields feeling, *which is found in none of the other qualities*."† Epicurus, therefore, knew that *feeling* could not be accounted for by the material elements alone, or by their qualities, and hence had recourse to another principle, which he styled

* *De Placitis Philosophorum*, L. IV, c. 3, and *Adversus Colotem*. † *Eclog. Physic.*, L. I.—Theodoret (*Græcar. Affect.*, L. V) says the same.

unnamed, because it was different from the elements that were known and had a name; but he did not rise up to intelligence, nor perceive that the sensitive principle he spoke of must be immaterial.* At the same time, he regarded it as conjoined with the organization in such a manner that, on the latter being dissolved, it would itself be dissipated;† which was, indeed, catching a glimpse of the nature of the sensitive soul.

29. II. The Stoics, according to Plutarch, made the principal part of the soul to consist in *feeling*.‡ Moreover, they attributed feeling to a kind of spirit similar to that referred to by Aristotle, and having the nature of heat.¶ From the principal part of the soul they derived all the other parts, and so they constituted it.§

30. III. Now, as after the doctrine of atoms [elements] there came that of their harmony, as professed by Dicearcus and Aristoxenus; so after the doctrine which placed the essence of the soul in the senses there came that of their harmony. Plutarch tells us that Asclepiades, the physician, defined the soul, "The exercise of the five senses accordant with itself;"¶ which was, in fact, positing even less than had been posited by Epicurus. For the latter, by positing a sensitive principle, had embraced the whole of the animal feeling, whereas Asclepiades was reducing the soul to the five external and common modes of feeling, omitting to observe that animality can feel in many other ways.

* Diog. Laërtius, L. X, 63 *et sqq.*—*Lucret.*, L. III.—Sextus Empiricus, *Hypotipos.*, 187, 229.

† *Lucret.*, L. III, 224 *et sqq.*—Diogen. Laërtius, L. X, 64 *et sqq.*

‡ "Stoici quidem passiones in affectis locis, sensus vero in principe animæ parte constituunt" (*De Placit. Phil.*, L. IV, c. viii). And in another place: "Stoici supremam animæ partem ipsius etiam principem esse dicunt, quæ phantasias et assensiones et sensationes et appetitus efficit: atque hanc ipsam animæ partem *ratiocinantem* vocant" (*Ibid.*, L. IV, c. xxi).

¶ "Stoici spiritualement quidem eam asserunt, sed quæ tamen maxima quoque

calidi parte constaret" (Theodoret, *Græc. Affect.*, L. V).

§ "A principe vero animæ parte septem aliæ animæ partes enatæ, atque per corpus extensæ sunt" (*De Placit. Philos.*, L. iv, c. xxi). Plutarch says also, that the Stoics took the sense in various modes, and "ipsa quoque octava pars animæ princeps, a qua eadem anima constituitur" (*Ibid.*, L. IV, c. viii). Hence it would seem that we have not to follow (as Corsini would have us) the reading of Stobæus, "a qua sensitiva vis constituitur." See also *Ibid.* c. iv.

¶ "Quinque sensuum exercitium sibi consonum" (*De Placit. Philos.*, L. IV, c. ii).

CHAPTER IV.

THIRD CLASS OF ERRONEOUS SYSTEMS: THOSE THAT PLACED THE NATURE OF THE SOUL IN IDEAS, THAT IS TO SAY, CONFOUNDED THE SUBJECT WITH THE OBJECT.

31. Philosophic meditation having reached the point of submitting the nature of the animal feeling to the scrutiny of scientific reflection, and having thus brought to light the fact that this feeling could in no way be explained by means of the material elements alone, it remained for thinkers to bring within the sphere of reflex and scientific thought the operation of intelligence also, wherein they might at last discover the nature of the intellectual soul.

It is, however, more difficult to fix one's reflection on the *intelligent subject*, than to go direct to the *object* of the intelligence, and keep the reflection fixed exclusively on it. The reason of this is because the *object* is the direct and immediate term of thought; whereas the process followed by thought, as also thought itself, does not become object save through a posterior reflex operation. Hence we can see very plainly why it was that none, perhaps, of the ancients reached so far as entirely to distinguish and separate the subject from the object, namely, the *soul* from the *idea*. Indeed, all the most illustrious among them, having with their lofty minds risen above the grossness both of materialism and of sensism, rushed on at once to the idea without at all attending to the intelligence which thinks the idea; in other words, they placed the nature of the intelligence and the intellectual soul in ideas.

I.—PYTHAGORAS.

32. Amongst these ancients, the first who seems to me deserving of mention is Pythagoras, who, as Plutarch tells us, "regarded the soul as a number that moves itself: and, moreover, took the number as meaning mind."* Now, numbers are nothing but abstract ideas. If, therefore, the mind is a number, the mind or the intellective soul is confounded with the ideas which illumine the soul, the subject with the object.

33. This concept of Pythagoras's numbers was, however, explained in different ways by the ancients, for the very reason that, being an abstraction, it left to the followers of this philosopher a wide field for giving it a variety of determinations, whilst on the other hand it was necessary for them to determine it in one way or another, in order that a being of some kind might be the result. Aristotle, who seems to be uncertain as to the meaning to be attached to the Pythagorean number, undertakes to combat the doctrine taken in three different senses, that is to say, 1° as signifying pure numbers, 2° as signifying minute corpuscles, 3° as signifying mathematical points.† Surprising to say, he does not so much as hint that the Pythagorean numbers may signify ideas (which, however, was said by some of the ancients); neither does he give any hint as to their being "abstracts of entities, taken as the basis of the reasoning which it was intended to institute about the entities themselves;" which, to my mind, is the most natural, indeed the true explanation of the numbers in question.

34. I will illustrate this by a simile. Just as a mathematician, wishing to give the theory of the continuous quantity of bodies, forms to himself abstract bodies by retaining extension and shapes only and rejecting the rest, and then, taking these hypothetic bodies or, as I would rather say, these postulate bodies, he reasons on them and

* *De Placitis Philos.*, L. IV, c. ii.—See also Theodoret, *Græc. Affect.*, *Serm.* v.

† *De Anima*, L. I, c. vi.

builds up his theory; so Pythagoras, or whoever spoke of numbers in the sense of the Pythagoreans, wishing to give the theory of beings, formed to himself abstract beings by setting aside all that there is in beings, number alone excepted, and then drawing the theory of beings from this only that they are numbers.

What convinces me that such must be the true interpretation of the Pythagorean numbers is, observing how great was the power of abstraction in the philosophers of the Italic school, and with what vehemence the philosophic instinct, which tends to the universal, impelled them to abstraction as to a region altogether spiritual, in which—being as yet untaught by experience, and dazzled by the novelty of the discovery of a world so entirely free from all conditions of matter and time—they flattered themselves with the belief that the whole of wisdom must be contained. It is enough to consider how Xenophanes went direct to the question of the *unity of things*; and how by means of Parmenides and Zeno the great philosophical problem of that day very soon became, through abstraction, the most elevated of all imaginable problems, namely: "Whether all things be one or many." To an attentive observer, the question agitated between the defenders of unity and those who stood up for plurality, is in reality nothing but the question of the Pythagorean numbers. There was certainly no need of adding anything to unity and to plurality, because the question was about these two abstractions and nothing more. Hence all the interpretations which add something to the Pythagorean numbers with a view to give them some determination, seem to me of a date later than the time of Pythagoras. They are no longer questions of *theory* (which was the only question debated at the time of the first Italic philosophers); they are questions of the *application of the theory of those numbers*.

35. In fact, the doctrine concerning numbers, being pure theory in the most unqualified sense of the word, it followed that it must be applicable to all beings without

exception. It was the pure Mathematics of Ontology, a kind of universal language. Hence the different forms which that theory assumed when it came to be applied to beings. Instead, then, of the theory and its application being kept distinct as two parts of Ontology, they were confounded, or to speak more correctly, the pure theory was lost sight of.

36. The pure ontological theory of numbers, as the earliest Italic philosophers seem to have conceived it, did not therefore regard the soul any more than it did other beings. On the contrary, it could and should have been applied to all beings indiscriminately. And since numbers are the most abstract of all the elements that it is possible to consider in beings, it came to pass, as Aristotle informs us, that they were called the *first things*, the *numerical elements*, and also the *elements of all beings*: τὰ τῶν ἀριθμῶν στοιχεῖα τῶν ὄντων στοιχεῖα πάντων εἶναι ὑπολαβάν.*

Accordingly, this theory of numbers, when applied to extension, resulted in the principles of Pythagorean Mathematics;

When applied to bodies, it resulted in Pythagorean Physics, and, in particular, in the doctrine of Indivisibles;†

When applied to God, it resulted in Pythagorean Theology;

Lastly, when applied to the soul, it resulted in Pythagorean Psychology.

37. Now, in the application of the theory of numbers to the soul, the questions asked about the soul must, if I am not mistaken, have been the following:

1° Is there unity in the soul? 2° Is there duality? 3° Trinity? 4° Quaternity, &c.? In other words, is there a thing which is rigorously one? or two? or three? or four, &c.?

The Pythagorean answer to these questions was, that in the soul there was the two, the three, the four, but nothing further.

* *Metaph.*, I, v.

† How this Pythagorean doctrine regarding the corporeal elements is ex-

pounded by Cardinal Gerdil, may be seen in his *Introduzione allo Studio della Religione*, P. I, Bk. II, sec. 3.

38. In what did the Pythagoreans place the unity of the soul? In the *mind*. "The *One* is the intellect"* (says Plutarch in his exposition of the Pythagorean tenets), "because the intellect is considered as unity. In truth, men being many, it is impossible for all of them to be known by the sense, because they cannot be comprehended by it, and they are infinite. But we form only the idea of man in our thought, and this idea has no resemblance to any particular man. The same must be said of the idea of the horse; for the particulars are infinite, and all their species and genera are comprehended by means of unity. Hence it is that the Pythagoreans, applying this same definition to each kind of beings, say that man ought to be called a rational, or a reasoning animal" (*De Placitis Philos.*, L. I). Seeing, therefore, that the mind considers many individuals by means of one and the same *specific idea*, and many species by means of one and the same *generic idea*, these philosophers attributed unity to the mind. But unity should be attributed to it for a much greater reason, namely, because it embraces all genera of things by the single *idea of universal being*, in which idea are reduced to perfect unity, not only the manifold real beings, but also all determinate ideal beings, whether specific or generic.

39. And it seems to me that this *idea* must have been exactly what Pythagoras took for God; for he defined God as the "Number of numbers" (*ἀριθμὸς ἀριθμῶν*†), even as Plato, later on, called Him "The Being of beings" (*ὄν ὄντων*‡). The error, however, which I now wish to point out in him is, that he confounded the *mind* with the *idea*, or certainly often expressed himself in a way which involved this confusion, and that, therefore, he did not make the proper distinction between the *subjective* nature of the one and the *objective* nature of the other.

40. Nevertheless, it would appear that before the time of Socrates and Plato, the Pythagoreans, who were undoubtedly aware of the unity of the mind, had not affirmed

* *νοῦς μὲν ἡ μονὰς ἴστιν.*

† Hierocl.

‡ In the *Timæus*.

in express terms, or at least in a constant manner, that the reason of that unity lay in the nature of ideas. Indeed, Aristotle tells us that it was Plato that added *ideas* to *numbers*, from observing Socrates's mode of disputation;* unless we should rather have to say that Plato merely introduced the use of a more philosophic language in discussing the question of the nature of ideas, and gave this question a greater importance than was given it before.

41. But in what did the *duality* of the soul consist?—In *knowledge*, said the Pythagoreans. Now knowledge is essentially objective, and the error and confusion which I have indicated, are clearly seen in this, that knowledge, in which they placed the *Two*, was made by them to correspond to the mind, in which they placed the *One*; whereas they should have made knowledge to correspond to the idea, and reason (reasoning) to correspond to the mind. As to what they exactly meant by *knowledge*, it would not be so easy a matter to determine; but it is probable that they meant by it any proposition or judgment regarding abstract ideas, and therefore necessary; for in order to pronounce such judgment two terms at least are required, a subject and a predicate.

42. Again, in what, according to these philosophers, did the *trinity* of the soul consist?—In *opinion*, namely, in the judgments which are made about contingent things, and in which therefore (as is the case with synthetic judgments†) the agreement of the predicate with the subject is not necessary and self-evident. Inasmuch, therefore, as in this kind of judgments the predicate cannot be united with a subject without some extraneous reason determining the mind thereto, it is necessary, in order to opine, that a third element should intervene. Hence, for them, opinion was the *Three*.

* See *Metaphys.*, L. I, c. vii, from which it would appear that the Pythagoreans did not apply the theory of numbers save to mathematical bodies and to sensible things. It should, however, be observed, that Aristotle (whether in good faith or sophistically)

shows himself uncertain as to the meaning to be attributed to the Pythagorean numbers.

† On the distinction between synthetic and analytic judgments, see *New Essay on the Origin of Ideas*, Vol. I, 342.

43. Lastly, the Pythagoreans found the *Four* in *feeling*, that is to say, in the judgments made about sensible things. They were, it seems to me, led to this by seeing that feeling is not a sufficient reason for applying a predicate to a subject unless it has itself been previously perceived by the understanding, so that even the simplest judgment that can be made in consequence of a feeling requires at least four elements. Let us take as an example the following judgment: "This red is a being." We can distinguish in it, 1° the sensation of red, 2° the intellective apprehension of this sensation, 3° the necessity that where there is the sensation of red there should be a being in action, 4° the affirmation.

44. Plato derives opinion from feeling, and knowledge from the mind, and thus reduces the Four to the Two.

45. As to how in the Pythagorean system the soul is a number that moves itself, we can readily see it by considering that the four numbers which are noted in the soul flow the one from the other; the Four from the Three, because the judgment on sensible things presupposes the faculty of synthetic judgments; the Three from the Two, because the faculty of synthetic judgments presupposes the faculty of analytic judgments; the Two from the One, because every judgment presupposes the idea as the starting point of all the soul's operations.

Hence, Plutarch thus summarises the system of Pythagoras: "Nostra anima, inquit, ex quaternario constituitur, ex mente nimirum, scientia, opinione, sensu: ex quibus ars omnis constituitur, nosque ipsi rationis compotes sumus. Itaque mens unitas est, siquidem mens secundum unitatem speculatur" (*De Placit. Philos.*, I, iii).

II.—EMPEDOCLES (B.C. 438-378).

46. From Pythagoras I pass to the Pythagoreans, and from these I select Empedocles.—My opinion is, that the elements of which Empedocles said that the soul was composed were not the material elements themselves, but the

ideas of the elements ; at least, it is certain that some of his disciples understood him in this sense.* According to this opinion, the Agrigentine philosopher would in great part be cleared of the charge, which has been laid against him, of grovelling materialism ; indeed, the opposite error might be imputed to him, that of having changed the nature of the intellective soul into the nature of the ideas themselves ; which is the same as deifying the soul, since the nature of the idea partakes of the divine. I shall here state in full the reasons which have led me to this persuasion.

47. The first is, that when there is question of interpreting the mind of a philosopher of whose writings only a few fragments remain, it becomes a matter of great importance to take the philosophic tradition into account, and not deal with him as if he never had any communing with his fellow-men, and had invented everything by himself quite independently of any preceding school of thought. And this consideration would have all the more force if that philosopher had happened to live at a period in which the study of philosophy was flourishing, as indeed was the case with Empedocles ; for it was exactly in his time that the Ionian philosophers, and still more those of Samos, of Colophon and of Elea were most celebrated, and by the sublimity of their speculations filled the minds of men with wonder. Now, does it seem likely, that after the most elevated questions had been so much discussed, Empedocles should fall into an error so gross and vulgar as to take the intellective soul for a mere compound of brute elements, ignoring or cancelling all the sublime things that had been said by those before him on this subject ?

48. Besides, materialism adopted as the result of reflection, and professed boldly and without disguise, does not belong to the period in which philosophy was forming. It belongs, if we well consider the matter, to the period of its corruption, when sophistry and dissolute morals had begun to prevail. No doubt, the first philosophies were infected with materialism ; but it was a materialism of a

* See *Del Rinascimento della Filosofia*, &c., Bk. III, chap. xli.

special kind, peculiar to themselves, due to want of reflection and mixed up with spiritualism. For the division between spirit and matter had not yet been properly seized upon by thinkers, who did not distinctly affirm either spirit or matter, but spoke of both as making one only thing.

49. Again, according to the rules of sound criticism, to get at the truth about things that are uncertain, we must view them in the light of those that are certain. Now, nothing is more certain than that Empedocles professed Pythagorism, for which reason it was that he belonged to the Italic School. Can it be, then, that a Pythagorean, or, if the expression of Diogenes Laërtius is preferred, a Pythagorist,* had no better doctrine to propound about the soul than that which described it as consisting solely of material elements?

50. Moreover, in none of the ancient authors do we find that Empedocles was ever ranked with materialists, whom Cicero used to call by the name of plebeian philosophers. He was invariably associated with Pythagoras, Parmenides, Anaxagoras, Plato, and others of that class. Aristotle makes the difference between Empedocles, on the one hand, and the Pythagorean and Plato on the other, consist in this, that they placed the One and Being in the *essence*† of things only, whereas he made *friendship* underlie *unity*. Aristotle, after proposing various questions, subjoins: "What is most difficult of all and involves the greatest ambiguity, is, to know whether the ONE and BEING, according to the Pythagoreans and Plato, are nothing else but the ESSENCE OF BEINGS (οὐχ' ἕτερόν τι ἔστιν ἀλλ' οὐσία τῶν ὄντων), or, instead of this, some other thing underlying it (ἀλλ' ἕτερόν τι τὸ ὑποκείμενον), as Empedocles says friendship is, while some other says fire, and some other water or air."‡ And a little further on he repeats the same thing, though doubtfully, as if the opinion that Empedocles made friendship underlie the one and being were rather conjectured by himself

* Diog. Laërt., IX, 21.

† The reader must observe that the *essence* is what is intued in the *idea*;

hence we are here in the world of Intelligibles.

‡ *Metaph.*, L. III, c. i.

than expressed by that philosopher.* Thus, even as Plato and the Pythagoreans explained the numbers of Pythagoras by reducing them to the essences and the ideas; so Empedocles would seem to have determined the *unum abstractum* by friendship, while retaining in the main the Italic doctrine, and developing it in his own way.

51. Now, why did our philosopher compose the soul of all the elements?—In order that he might thus explain that knowledge of all things of which the soul is susceptible, setting out from the principle that “like is known by like.” But whence did he take this principle?—From the school of Pythagoras, a school eminently spiritualistic, in which this same principle was professed. He ought, therefore, to be understood in accordance with the mind of that school. Chalcideus says expressly: “Est pythagoricum dogma, similia non nisi a similibus comprehendī. Quod etiam Empedocles sequitur.” Our philosopher, then, did not invent; he simply followed an opinion which was already in possession. Chalcideus goes on: “Hæc quippe constituebat [according to Empedocles] elementa et initia universitatis,† ex quibus animæ quoque censebat constare substantiam. Proptereaque penes eam omnium rerum esse

* The passage of Aristotle is this: “The most difficult point to investigate, and withal a point about which it is supremely necessary to know the truth, is, Whether being itself and the one itself are what constitutes the essences of beings, and there is no other thing which should be attributed to both of them, so that we ought to say straightway, ‘this is one, this is being;’ or, on the contrary, whether it is necessary to inquire in what being itself and the one itself consist, as though there were another essence underlying them. For on this matter opinions differ. Some think that the one and being have their nature after this way, some after that. Plato and the Pythagoreans said that there is nothing else than being itself and the one itself, and that their nature is such that the essence is one and the same thing with them. But those who have treated of nature, as, for example, Empedocles, say that the one is being,

as it were reducing the former to a thing more known than itself; for it seems allowable to say that the latter (being) consists in friendship (ὁδὸς ἥτις ἐν ἡμεῖς τοῦτο τὸ φίλον ἓνα), since friendship is what causes all things to be one” (*Metaphys.*, L. III, c. iv). Karsten thinks that the word *φιλία* should be referred to Empedocles as being at that time the best known of natural philosophers, and he proposes to correct this passage in this sense. To me, however, it seems that we may leave it as it stands; because to maintain that being underlies the One and is itself reduced to friendship, is in reality to reduce the *One* to a thing more known than itself, since being and friendship are better known to the generality of men than the *unum*, which belongs to the highest order of abstraction.

† It would be very appropriate to describe ideas as *initia universitatis*.

plenam scientiam, SIMILI SUO SIMILITUDINEM HABENTIA COMPREHENDENTEM."* The soul, then, had in it the *similitude* of the elements, not the material elements themselves; and this agrees with the way of thinking of the Pythagorean school, and of that of Elea, in which Empedocles was educated.

52. Empedocles recognises God as pure mind without any corporeal concretion, and there are some verses of his still extant, in which, after having said that God cannot be perceived by the senses, and insinuates Himself into the breasts of men by the most ample road of faith (*μεγίστη πειθοῦς*), and that He is without corporeal members, he concludes:

"Pure mind is He, holy, immeasurable
Pervading all the world with His swift thought."†

These verses, as has been before observed, remind one of similar verses of Xenophanes,‡ and show that the doctrine of Empedocles was but a continuation of that of earlier philosophers.

53. Sextus Empiricus, in placing Empedocles among the Italic philosophers, testifies that he admitted one spirit (*ἐν πνεύματι*) communicating with all nature and dispensing life to all things.|| This proves that he was no mere materialist, and could not be supposed to have held that our souls were made of material elements, since he maintained that we ourselves were animated by that spiritual soul which pervaded the whole world, and was mind only

* *Ad Timæum* (See *Sturz, Edit. Lipsia*, sec. ix, p. 205).

† Ἄλλ' ἔστιν ἱερὸν καὶ ἀθίσφατον ἔπλατο μῶνον
Φροντίσι κόσμον ἅπαντα καταΐσσουσα θοῆσιν.

(See *Karsten*, VI, 362-3.)

‡ Especially of this verse attributed by Simplicius to Xenophanes: Ἄλλ' ἀπάνευθε πόνου νόον φρονί πάντα κραδαίνει (But with mind and thought He governs all without difficulty).

|| I transcribe the passage of Sextus Empiricus: Οἱ μὲν οὖν περὶ Πυθαγόραν καὶ τὸν Εμπεδοκλέα καὶ τὸν Ἰταλῶν πλῆθος φασί, μὴ μόνον ἡμῖν πρὸς ἀλλήλους καὶ πρὸς τοῖς θεοῖς εἶναι τινα κοινωνίαν ἀλλὰ καὶ πρὸς τὰ

ἄλογα τῶν ζώων ἐν γὰρ ὑπάρχῃν πνεῦμα, τὸ διὰ πάντοι τοῦ κόσμου διήκον φυσικῆς τρόπον, το καὶ ἐν οὖν ἡμῶς πρὸς ἐκεῖνα (Sextus Empir., *Adversus Physic.*, I, 127). Seeing this communion of spirit between all the things of nature, Empedocles laid down a kind of law (*ἵκον*) common to all (το πάντων νόμιμον). See *Fragm.*, vv. 404 and sqq. in *Karsten*.

(φρὴν ἱερὴ καὶ ἀθέσφατος).* And does he not also declare the human souls to be of a divine race, come down from heaven upon earth as into a place of exile, into a cavern (φυγάδες θεόθεν), clothed in corporeal vesture (σαρκῶν χιτῶνι), compelled to transmigrate from one corporeal form into another for the space of thirty thousand years (τρίς μυρίας ἔρας) until they have become pure? In all which things we see evident traces of the tradition regarding the original transgression, and the Pythagorean metempsychosis. How, then, can we believe that, when, speaking poetically, he describes the human souls as composed of all the elements, he means that they really are a concretion of all kinds of matter?

54. It should furthermore be observed that Empedocles often calls his elements Gods, the very name which Plato and the Platonists subsequently gave to ideas. Aristotle affirms that according to Empedocles the elements are by nature anterior to the Gods (τὰ φύσει πρότερα τοῦ θεοῦ), no doubt because he supposed the Gods themselves to be formed of these elements; although he subjoins that the elements also are θεοὶ δὲ καὶ ταῦτα;† from which we see that Empedocles posited several generations of Gods, or of demons, and that he placed also the human souls amongst them. This entirely agrees with the doctrines of the Platonists, who made every idea a God, and likewise made the human souls to consist of ideas. Hence Empedocles, having changed the elements into persons, gave them the names of various divinities.‡ By so doing, he was abusing science to establish idolatry and superstition, even as had been done by more ancient philosophers, among them Pherecides, who inscribed his book *On the Elements and their mixture* by the name of θεοκρασία. For

* Perhaps it is because Empedocles made God the "soul of the world" that Clement of Alexandria places him among atheists (*Protrept.*, c. v). Sextus Empiricus, on the contrary, places him among those who Θεὸν ἀπολείπουσιν (*Adv. Physic.*, I, 64); and in this I think Sextus is right.

† *De Generat. et Corrupt.*, L. II, c. vi.

‡ The passages of Menander and of other ancient authors with reference to this matter may be seen in Sturz and Karsten.

these thinkers were neither able to elevate their minds to the clear knowledge of God, nor courageous enough to stand up against the prevailing and gross error of idolatry in which they had themselves been brought up.

55. The truth of the opinion on which I insist is also supported in no small degree by another passage in Aristotle, where this philosopher declares expressly that the teaching of Empedocles in regard to the human soul is similar to that of Plato.* Here is the passage :

"Those, therefore, who (in defining the soul) had regard *to the motion* of animated things, believed the soul to consist in that which is in the highest degree fit to impart motion. Those, on the contrary, who had regard to the *virtue of knowing and feeling* beings, affirmed the soul to consist of the *principles*; that is to say, those who posited several principles maintained that it consisted of them all, while those who posited one principle only maintained that it consisted of this."

Now, among the philosophers who had regard, not to motion, but to the virtue of knowing and feeling, Aristotle names Empedocles and Plato, thus implying that they made the soul to consist in elements capable of knowing other elements, namely, in ideas, as was certainly the case with Plato. Hence he continues :

"As Empedocles, who constituted it of all the elements, and at the same time declared also that EACH OF THOSE ELEMENTS was a soul, saying :

'With earth the earth do we behold, the water
With water, the air with air, and the fire
Likewise with fire, and love with love alone,
And so with discord we sad discord do behold.'

"And in the same way Plato, in the *Timæus*, sets down the soul as the result of the elements, meaning thereby that like is known by like, and that things are composed of their

* Cicero likewise associates Empedocles with Pythagoras and Plato, and represents these three great men as being alike opposed by the Materialists.

He says: "Epicurus, et Metrodorus, et Herinachus contra Pythagoram, Platonem, Empedoclemque dixerunt" (*De Natura Deor.*, I, 33).

principles. The same he has set forth in those writings which are inscribed *On Philosophy*, namely, that the animal itself comes from the idea of the *One*, and from the first length, and breadth, and height; and so with other things."*

56. On this passage several important considerations suggest themselves.

In the first place, it is beyond all question that Plato did not make the intellective soul, namely, the mind, consist of material elements; he rather made them consist of ideas. Indeed, in the *Timæus*, it is the body that he describes as the result of those elements; and, for Plato (as before for Empedocles), the body is a kind of prison of the soul, whose regular movements it disturbs. Hence he says, that "when the soul is first inclosed in the bonds of the mortal body, it becomes mad;"† and this is how he explains the ignorance in which man is born, and the irrational movements of infants not yet come to the age of reflection.

57. In the second place, we have to consider that if, as Aristotle informs us, the two philosophers above named, who supposed the soul to be formed of the elements, did so by starting from the principle that "everything is known by means of its like," the obvious conclusion is that, for them, the elements by means of which the soul came to know the material elements were not the same as these, but only similar to them; and it is well known that, for Plato, *similar* was synonymous with *idea*. Consequently, these philosophers were speaking of *ideal* elements, since it is in these alone that the *similitude* of things, through which the soul knows, is to be found.‡

58. In the third place, what is, according to Plato, the first length, the first breadth, and the first height? Nothing else but the length, breadth and height in *exemplar* and *essence*, that is to say, the *idea*, which, according to him, was the cause of the real things. So likewise the idea of

* *De Anima*, L. I, c. ii.

† *Timæus*.

‡ *New Essay on the Origin of Ideas*, Vol. III, 1183-1186.

the *One* is the exemplar-principle of the animal. For it must be observed that in Plato's system the identical essence which was in the idea was also in the things; whence it followed, that far from materializing the ideas, he was rather spiritualizing the things.

59. But it seems to me well worth while to expound here more fully the doctrine of Plato on the two species of elements, namely, the *real* and the *ideal*, and then to examine whether from the fragments and the testimonies that have come down to us regarding the opinions of Empedocles we can gather something similar to it.

Two of the greatest men of whom Italy may well be proud, I mean Parmenides and his disciple Zeno, had seen very clearly and demonstrated that it was impossible to explain this material universe without having recourse to some spiritual principle which gave it consistence and unity. Powerful dialecticians both of them (and it was the second that formed Dialectics into a science), they were not satisfied with enunciating a few solemn but detached sentences, after the manner of the Orientals, but undertook to give a logical demonstration of their thesis. For this purpose they fixed their attention on the nature of the corporeal *continuum*, and argued as follows :

"Every assignable part of a corporeal continuum embraces itself, but nothing beyond; all the rest [of that continuum] is outside of it.

"But of parts assignable in a continuum there is no end.

"Therefore, assign as many continuous parts as we may, it always remains true that they exclude from themselves a portion of the extended [to which they belong].

"But if each of these parts always excludes from itself that portion of the extended which is not itself, it follows that it never can itself be found; and if it never can be found, it does not exist.

"But if no elementary *continua* exist, no *continuum* can exist; and since the nature of body lies in the continuum, the obvious conclusion is, that body, taken by itself alone, has no existence.

"If, however, you suppose that, in addition to body taken by itself, there is a simple subject (a *mind*, those philosophers would say) which is able simultaneously to embrace the whole continuum together by one sole act, then the continuum stands, it exists as a simple, not indeed in virtue of the simplicity of the subject, but in essential relation with it. The foundation, therefore, of body consists in mind (the subject they spoke of), or, in other words, mind is a necessary condition for the existence of body."

Such was, in substance, their argument, and its force could not be gainsaid, it being evident that the continuous cannot be reduced to mathematical points. Neither can body; for if a body were reduced to mathematical points, the result would be, either that these points would act within themselves only, and then they never could by their aggregation produce anything sensible; or that they would have a sphere of continuous action around them, and then the continuous would still exist, which is against the hypothesis.*

But what is the continuous in the mind? In so far as it is a *possible* continuous, it is simply an idea; but in so far as the mind *affirms* it, it is a continuous realized in feeling and in matter, although always considered by the mind and in relation with the mind.† The essence, therefore, of the continuous, which is contemplated in the idea, is that unity which causes the material universe to exist—an extended continuous variously modified and modifiable.

60. The argument drawn by Parmenides and Zeno

* *New Essay on the Origin of Ideas*, Vol. II, 823-825.

† It will be observed, that here I myself add the distinction between the *essence of the ideal continuous* and the *realized essence*, both of which are objects of the mind, although attained through different operations. Parmenides and Zeno reached as far as to see that the *essence* must be unchangeable and one; but at this point they stopped. They did not perceive that in the reals, besides accidents, there is also the sub-

stance, although only in a state of reality, and hence of dependence on the *essence*, which is ideal. Even Plato failed to seize on this important truth, and from this sprung the errors of the Eleatic and Platonic schools, namely, from their attributing also to ideas what belongs to things, in so far as they have the essence realized in them (substance and accidents), as we shall see more clearly in the course of our argument.

from the nature of the continuous in order to prove that anteriorly to all the phenomena of the world there must have been something eternal which gave them existence and consistence, was perhaps the greatest light that ever shone to the mind of Plato. It was, undoubtedly, from the principle laid down by these two great Italian philosophers that he derived the foundation of his whole doctrine. But, as happens with great men, he made the Eleatic doctrine so completely his own, that in his mouth it seemed original. The necessity of an eternal unity inferred by Parmenides and Zeno from the consideration of the nature of *space* was deduced by him, through a similar reasoning, from the consideration of *time*, and of the changes which take place in it in regard to material and sensible things.

As, therefore, I have done with the reasoning of the ancient sages of Elea, reducing it to a brief, but, as it seems to me, most cogent form, so I propose to do with that of Plato, aiming direct at the bottom of his thought, and presenting it in all the force of which it is susceptible. The argument of Parmenides and Zeno drew all its cogency from this principle: "The corporeal substance (apart from mind) is nothing but a relation of many substances placed in juxta-position, and, consequently, that substance, if it exists, must be found in the elements, that is, in the first *extensa*. But there are none such to be found, and, on the other hand, beyond the first *extensa* we can conceive nothing but mathematical points, which are not extended substances. Consequently, extended substances, or bodies, do not exist save by the unity of the mind."

Now, Plato argues in exactly the same way on the basis of the changeableness of things in time. He says: "If a thing were supposed to exist only in a mathematical point of time, it would not exist at all. In fact, a mathematical point of time has no duration; that thing, therefore, would have no duration, and that which has no duration has no existence." The same may be proved

also thus: "Assuming that a thing endured for a mathematical instant and not more, in what instant would it cease to exist? In the same instant in which it exists? Not so; for in that case it would be and not be at the same time; in other words, the instant in which it was brought into being would be the instant of its extinction, which is a contradiction in terms. In a subsequent instant, then. But if the instant in which it is destroyed must be distinguished from that in which it exists, there must be an interval of time during which it has continued to exist, against the hypothesis. Therefore, a thing which endures a single instant is an absurdity, because repugnant to thought."

Now, if we consider the material universe without adding to it anything from our mind, it becomes exactly an absurdity, inasmuch as no one can say that such universe exists either in the past or in the future. It can only exist in the present. But in what present? However much we may diminish the present duration, we never can discover it; and if we were to find it after an infinite number of divisions, it would be reduced to a mathematical point of time. Such, indeed, is all the existence of the material world left by itself alone, and separated from all mind; for every moment of time is outside every other, and excluded by it. But the duration of an instant is no duration, and a being which is supposed to endure one instant only, does not endure at all, and therefore, as has already been demonstrated, is an absurdity. Consequently, the material universe, alone, without the mind which contemplates its identity for a certain time (past and future), embracing it all with one most simple act, has no existence.

This is how Plato establishes the necessity of *ideas* as the causes of things. His mode of expression is certainly different from that which I have used; but the drift of his thought is in no way altered. He confines himself to observing the continual changeableness of things; I have pushed this changeableness to the uttermost limit, by

showing that the existence of material things is of so fugitive a nature as to have no duration whatever, while at the same time some duration is absolutely necessary in order that they may exist.

61. Let us now proceed to apply this doctrine to the elements of which, according to the ancients, the material world is composed. Plato says, that the earth is dissolved into water, the water into air, the air into fire, the most subtile of the elements; wherein we can already see an analogy with the doctrine of Empedocles, who also had made fire the origin of the three other elements.* Now, starting from this continually recurring changeableness of the elements, he goes on till he arrives at the conclusion that it is necessary to have recourse to a stable subject of all these changes. "It being manifest," he says, "that they [the elements] are never the same, who could, without shame and fear of reproach, say with security and certainty that any one of them is itself and not another? No one, certainly. In such things, therefore, it will be safest to speak thus: that which always appears formed in this and that fashion, and mostly under the semblance of fire, is not, properly speaking, fire, but has the *quality* of fire, namely, is something igneous. Likewise, this particular thing is not water, but something similar to it, namely, something aqueous, nor is it any other thing whatsoever, since it does not maintain any stability.—Wherefore none of the things of this description can be called either this or that, but only *such* or *such*, because of some similarity.—But that in which those singular apparitions take place and then are dissolved, that alone is, in my opinion, what should be called by the pronouns *this* and *that*."

Now, what serves as the subject of those ever changeable forms is the substance itself, which becomes at one time fire, at another air, at another water, and at another earth. But this substance, or first matter, or subject of all the qualities, is, according to Plato, something invisible,

* See Karsten, *De Empedoclis Philosophia*, sec. 6.

and conceivable only by the mind. He posits three kinds of things: 1° that which is generated; 2° that in which it is generated; 3° that after whose similitude it is generated. To this last he gives the name of *father*; to the second he gives the name of *mother*; to the first he gives the name of *offspring*. The matter in which all is generated, namely, the subject of all the changes, is, therefore, the *mother*, and of this he speaks thus: "I say, therefore, that the mother herself, the receptacle of the universe (which is the generated, and manifest to all the senses), is neither earth, nor air, nor fire, nor water, nor yet anything composed of these, or of which they are generated, but rather a CERTAIN INVISIBLE SPECIES and a formless womb capable of all forms, which in a certain ambiguous and all but inexplicable manner PARTAKES OF THE DIVINE AND INTELLIGIBLE NATURE."* Herein this great man teaches plainly enough, that the substance or matter which constitutes the subject of the sensible modifications is supposed by the mind, not given by the sense; nor should we be far from the truth if in this first intelligible matter which transforms itself into all things we were to recognise *universal being*, since this alone has the characteristics assigned by Plato to his invisible species susceptible of all forms (*πανδεχίς*) and not determined to any one form (*ἄμορφον*). And although in nature there must be a reality corresponding to this species, nevertheless, the concept of this reality would be absurd if the mind, by joining the idea with it, did not give it consistence. Indeed it is the mind alone, as we have said, that can conceive duration—a necessary condition of existence—since continuous duration is in the mind, and imparted only by it to real things. Hence, of his intelligible matter, Plato says: μήτε ἐξ ὧν ταῦτα (the elements) γέγονεν; and from this he concludes that the material elements are not the true elements, but certain images of the true elements.

But after having dwelt on the formless intelligible

* Ἄλλ' αὐρατον ἵδως τι καὶ ἄμορφον, τοῦ νοητοῦ, καὶ δυνατοτάτον αὐτὸ λήγοντι πανδυσί. μεταλαμβάνει δὲ ἀποράτατά πη οὐ ψευδόμεθα. *Titusianus.*

species, which, as we have said, can be nothing else than the being supplied by the mind, and, as it were, added in perception to the sensible and transient things, he proceeds to speak of other species less indeterminate, namely, first of fire, the first of the elements, and then of the other elements also. He therefore proposes to himself the question: "Whether there be a fire separate from matter and permanent in itself, and so with regard to the other elements;" and he proves that there must be the *intelligible essences* of these material things, essences to which the names of fire, air, &c., belong much more properly than to the things themselves. Hence he concludes: "This being the case, we must needs admit that there is a species which is always the same, without generation and without corruption, and neither receives into itself from without any other thing, nor does itself pass into any other thing whatsoever, nor is perceived by any corporeal sense. And this is what belongs to the mind alone, and falls exclusively within its intention." This species so admirably described is the idea, or to speak more pointedly, the essence of the thing intued by the mind, in respect of which essence the real thing fades away. Hence our philosopher subjoins: "But after that (species) there is a something which agrees with it, not, indeed, in concept, but in name, and bears the similitude of it, is generated from it, sensible, always upheld and sustained by another, generated in some place, then decaying, fit to be comprehended only by opinion through the instrumentality of the senses."

Such, according to Plato, is the character of the material elements, whose essences are intelligible and constitute the true elements, the true fire, the true air, the true water, the true earth, the previously-named elements being merely fugitive similitudes of these. According to him, therefore, it is of these intelligible essences that the intellective soul is composed. If, then, Aristotle is right in saying, as he does (55), that Empedocles made the soul consist of the four elements in a way similar to Plato's, ought we not to

conclude that the philosopher of Agrigentum likewise meant intelligible elements, or the species and exemplars of the material elements?

62. This seems to me to be placed beyond conjecture and to become a certainty, when we consider another passage of Aristotle, in which he unequivocally declares that Empedocles placed the essence of things in ideas. The passage to which I refer is found at the end of the first book of the *Metaphysics*, and runs thus: "Empedocles says that a bone exists by virtue of its reason" (namely, its intelligible essence), "the reason being that by virtue of which the substance of a thing exists. According to this, there must also be a reason" (an ideal essence) "of the flesh, and of all other singulars;* or else they are nothing. Wherefore, the flesh, and the bone, as well as all other things, do not exist by virtue of matter, which he says is earth, and fire, and water, and air.† Had he been interrogated, he would have assented to this also; but he did not expressly say it."‡

63. And if we consult more recent interpreters of the mind of Empedocles, we find Philoponus, for example, declaring that it seems to him evident that the elements as understood by that philosopher were the notions or ideas of the elements. He writes: "IT IS MANIFEST that Empedocles took them (the elements) symbolically, and that by saying that the soul is from the elements he meant, not that the elements themselves are the soul, but that the notions of them (τοὺς τούτων λόγους) are in the soul."||

64. But let us go on to the doctrine of Empedocles's *friendship* or *concord*, and we shall see in it a fresh proof

* Aristotle does not perceive that the question here is not about singulars, but about ideas, which are always universal, although it is by means of them that singulars are known.

† Empedocles would probably have answered that, although he made matter consist of the four elements, these elements, in point of fact, existed by virtue of their ideal essences, not by their own virtue.

‡ See also *De Partibus Animalium*, L. I, c. i.

|| Δῖλον οὖν ὅτι συμβολικῶς τὰυτα διδάμ-
βαινεν ὁ Ἐμπεδοκλῆς, καὶ ἐκ τῶν τεσσάρων
στοιχείων λέγων εἶναι τὴν ψυχὴν, οὐκ αὐτὰ
τὰ στοιχεῖα ἴδιον εἶναι τὴν ψυχὴν, ἀλλὰ
τοὺς τούτων λόγους εἶναι ἐν αὐτῇ. Philopon.
De Anima, L. I, c. i.—See Karsten,
Vol. II, p. 495.

that the meaning we have attached to the elements of which he composed the soul is the true one. Empedocles, then, in addition to the four elements, posited two principles to which he gave the names of *friendship* (φιλία) and *discord* (νεῖκος). Now, according to Aristotle and other writers posterior to him, as I have shown in previous quotations,* the friendship of Empedocles corresponds to the *unity* of Pythagoras and Parmenides, and the discord to *plurality*. This, if we attentively consider, is equivalent to saying that in these two Empedoclean principles are designated the two worlds, the intelligible and essential, to which the ideal elements belong, and the sensible and similitude-bearing, which is composed of the real [or material] elements; and this will appear all the more correct if we bear in mind that Empedocles, besides being a Pythagorean, was also, as Alcidamas relates, a pupil of Parmenides.†

65. Let us now hear how Syrianus, a commentator of Aristotle, defends Empedocles from the charge of self-contradiction brought against him by the latter, who, I regret to say, does not always seem to be over-just with those who had preceded him. Aristotle "accuses Empedocles of contradicting his own supposition; because, having posited two causes, the one efficient, viz., friendship, and the other corruptive, viz., discord, he afterwards describes many things as corrupted by friendship and many others as generated by discord. Now, Empedocles affirms indeed that each of these two causes predominates in turn; but he does not affirm that this alternate dominion is the cause of the transmutation of the principles. Neither

* Aristotle confirms this where he writes: ὅσοι, ἢ καὶ πολλὰ φασιν εἶναι, ὥσπερ Εμπεδοκλῆτι καὶ Αναξαγόρῃ. *Physic*, I.

† Diogen. Laërt., L. VIII, 56.—Philosophy began by the observation of *plurality*; it passed on to the system of *absolute unity*, sketched out roughly by Xenophanes, and perfected by Parmenides. Thence it went on to study the connecting link between *unity* and *plurality*, and this was the work of

Anaxagoras and Empedocles. Aristotle (*Physic*, I. I, c. v) says expressly: "And all those who say that beings are *the one* and *the many*, like Empedocles and Anaxagoras."—Anaximander had made the first step: in order to pass from absolute unity to plurality, he said that his aim was "to separate contrarieties from the one," and thus produce plurality.—See Aristotle, in the passage quoted above.

shall we say that he holds all things to be corruptible ; for he does not require to reconcile himself with himself in this manner. But this we will say, that, like the other Pythagoreans, he recognized the former [the principles] as INTELLIGIBLE SUBSTANCES, and the latter [the things] as SENSIBLE. He did not suppose discord to be the corruptive principle, and friendship alone the efficient one ; nor yet was he silent as to the reason of this apparent alternate dominion of the two causes in question. But being a follower of Pythagoras and Orpheus" (see how, as a key to the true interpretation of our philosopher's mind, reference is always made to the Schools to which he belonged) "he, in conformity with their teaching, supposed that, after the *One*—which is the principle of all things, and of which neither Parmenides nor Pythagoras would permit that any reason should be asked—there are *many* principles, that is, these two : *friendship* and *discord*, the very same which the Pythagoreans called *unity* and *duality*, characterizing the first of them as interminate by reason of its universally occupant power. Now, from these principles there emerged the intelligible world and the sensible world. In the intelligible world, called Sphærus (*σφαῖρος*), the action of friendship held sway, owing to the union of the immaterial and divine substances ; whereas in the sensible the dominion belonged to discord."*

These words, which are just of the kind to agree with the age and education of Empedocles, may well be regarded as ample satisfaction for the wrong that so many have done this noble luminary of the Italic school in supposing him to be of so stupid and untutored a mind as to take the human soul for a compound of material elements.†

* *Ad Aristotel. Metaphys.*, L. II.

† The same Syrianus, in commenting on another passage of Aristotle (*In Metaph.*, xiii), again takes up the defence of Empedocles, and speaks of the *intellectual world*, namely, of the *ideas*, posited by this philosopher. His words are : "Nec Empedocles recte accusatus est nunc (forte nec alias) tanquam mixtum ipsum corrumpens per litem.

Neque enim lis est corruptiva—ipsa quippe est quæ mundum facit : neque Sphærus (the intelligible world) unquam dissolvitur apud ipsum, nisi quis VEREIS INCUMBENS quæ in tota sua THEOLOGIA proponit, AB INTELLECTU VIRI SEMOVEATUR. Sed est Lis quidem apud ipsum multitudinis et alteritatis (*πλεθὺς καὶ ἑτερότητας*) generativa, Amicitia vero identitatis et unionis. Idecirco et domi-

66. Another commentator of Aristotle, John Philoponus, says the same by crediting Empedocles with having praised *concord* as the cause of the intelligible and divine world, and blamed *discord* as that which divides the divine.* He also finds that Aristotle, in his remarks, has not dealt fairly by Empedocles. He adds, that the two principles (of *friendship* and of *discord*) are known by reason rather than by the senses, and that they have appeared to Empedocles as *ἀσώματοι φύσεις*.† Clement of Alexandria and others have preserved a verse of Empedocles having reference to his *φιλία* and declaring it to be an object of the intellect alone:

τὴν σὺ νόμῳ δέσκειν, μὴδ' ὅμασιν ἥσο τεθηπώς.‡

67. To some, however, it is inexplicable how Empedocles, at the same time that he assigns to *concord* the office of *uniting*, can say that it is *as it were matter*. Aristotle and Themistius, being at a loss to understand how the self-same *φιλία* can at one time be the *motor and unitive cause* of things and at another their *material cause*,|| think that here he is in contradiction with himself.

But if we start with the assumption that by *friendship* Empedocles meant the *One*, as Plotinus§ and many other ancients expressly declare,¶ and as we should naturally

natur in intellectualibus (*intelligibilibus*, as Sturz more correctly reads) Amicitia ipsa; in sensibilibus vero *Lis*. Nam ex utraque parte unum est et multitudo, sed alicubi quidem unum, alicubi multitudo dominatur" (See Sturz, *Edit. Lipsæ*, sec. 10, p. 220).

* Ἐπεὶ δὲ ὁ Ἐμπεδοκλῆς θίγει καλῶν τῶν σφαίρων, τὴν μὲν φιλίαν ἐπαναίει ὡς αἰτίαν τοῦτου τῆ πάντων συμφύσεως; τὸ δὲ νῦκος ψήγει ὡς διακριτικὴν τοῦ θιού, &c. (*Ad Aristot., De Generat. et Corrupt.*, II. — See Karsten, Vol. II, p. 330).

† *Ad Aristot., Physic.*, L. I, D. 1 et 2, and *De Anima* (See Sturz, *Edit. Lipsæ*, p. 227).

‡ *Stromat.*, 5.

§ See Aristotle, *Metaphysic.*, xiv, 10; and Themistius, *Paraphras.*, in xii. *Librum Arist., De Prima Philosophia*. "Absurde Empedocles censet. Bonum enim ipsum concordiam ponit esse: hoc autem principium est, et ut movens (congregat enim), et, ut sonant ejus

verba, EST UT MATERIES. Est enim pars ejus quod congressum est (Sturz, *Ibid.*).

§ Τὸ Ἐμπεδοκλῆι τὸ νῦκος μὴν διαίρει, ἢ δὲ φιλία τὸ ἐν. *Anead.*, V, L. I. c. ix (Sturz, *Ibid.*).

¶ I will give here the passages collected by Sturz. Alexander Aphrodisæus: "Empedocles UNUM amicitiam esse dixit, Anaximander aēr, quidem infinitum" (*Ad Aristot. Metaph.*); and again: "Naturales auctores, quorum fuit Empedocles, quiddam aliud ENTI et UNI subiciebant, et hæc illi adeo putabant. Nam Empedocles referens ad notius quiddam, UNUM amicitiam esse statuit, DE QUA UNUM PRÆDICARI AIT, quoniam amicitia per ipsum cogendis rebus causa cuique est, ut unum sint" (*Ibid.*). According to this, then, the ONE would be a predicate of friendship, that is, an elementary and abstract idea comprised in that of friendship.—Syrianus expresses himself thus: "Vide-

be led to suppose by the School to which he belonged, then the apparent contradiction vanishes. Indeed, what is the *One*?—Being in general. What is being in general? The essence of being intued in the idea, ideal being, intelligible being. Now this being fulfils, in regard to us, two offices:

1° It acts as *unitive virtue*, or that virtue which congregates material things into unity. For, as we have seen from the arguments of Parmenides and Plato, the material universe would vanish if the mind did not join *being* with it, since it is from *being* that these continually divisible and transient things derive stability and unity. Hence the ancients called Empedocles's friendship also by the names of ταῦταποιός and ἐνοποιός ;*

2° It acts as *intelligible matter*, inasmuch as that which we understand in all things is *being*, variously terminated and realized, and the *reality* of being [the *matter* of cognition] would not, by itself alone, furnish any object to the mind, so that, with it alone, there would be no possibility of the mind either conceiving or affirming anything. Hence, *being* is always what the mind UNDERSTANDS in things. This, properly speaking, should have been taken as referring to the primal *One*, to the Pythagorean God (ideal being, as I believe), called also the number of numbers, the fount of all other numbers, representing the species and genera of things. Now since each genus and each species is, according to the Pythagoreans, characterized by unity, because those concepts impart unity to

tur mihi, neque Empedocles aliud quid amicitiam ipsam supponere, quam ipsum UNUM; verum non quod est omnibus in-compositum, sed ut componitur interminata dualitas, quam litem ille appellat" (*Ad. Aristot. Met.*, ii). This passage, which is not a little obscure, may be interpreted thus: By *friendship*, Empedocles means the ONE, not, however, the *abstract one*, separated from every other concept save that of unity, but the ONE by which real being is sustained; from which duality, namely, from the ideal and the real, there results the First Being—God—and all the intelli-

gibles contained in the ideal, and the distinction of the sensible found in the real.—John Philoponus writes: "Quidnam est unum? Unum substantia quædam est, et IN EO QUOD UNA EST SUBSTANTIFICATUR, sicut Pythagorei prius dixerant, et postea Plato" (*Ad Aristot. Metaphys.*, x). He says that, through the *One*, the thing is *substantiated*, and why? Because the *essence* of the thing is in the idea which is apprehended; and in the *essence* the substance is seen (*Sturz*, p. 160).

* John Philoponus, and Olimpiodorus (*See Sturz*, p. 237).

the individuals, Aristotle says that Pythagoras and his disciple Alchmæon seem to place numbers in the genus of matter.*

68. And since Aristotle associates Plato with Empedocles, it will not be out of place here to cite the opinion of Serranus on the intelligible matter spoken of by Plato. This author, in his commentary on the *Timæus*, says: "I affirm (with all due deference to the judgment of the learned) that Plato's words cannot be considered as conclusive proof that he believed the matter of the world to be eternal except in so far as it is in the mind of God, Who, as He had from all eternity designed within Himself the form of the world which He had decreed to create in time, so He had done also in regard to matter."

69. Therefore Aristotle is merely cavilling when he makes the objection that "inasmuch as *mover* means one thing and *matter* means another, it still remains for Empedocles to declare in what sense precisely his *friendship* is to be taken, whether in the sense of *mover* (that is, congregating, unifying), or in the sense of *matter*."† I say he is merely cavilling; because, as we distinguish the *One* by essence and the *One* by participation, so we may distinguish *friendship* by essence and *friendship* by participation. Now *being*, the *One*, Empedocles's *friendship* by essence, is *matter* in respect of all *understood* objects; and in so far as it is participated, it is *unifying cause*, I mean the cause from whose action, out of the indefinite plurality of things subject to space and time, there results one only stable being, a fit object of the mind. Consequently, Empedocles's *friendship* is justly entitled to be called *friendship*, both, in the sense of *unifier* and in the sense of (intelligible) *matter*, although the concepts severally

* *Metaphys.*, I, v.

† "Accusat (Aristoteles) Empedoclem, absurdum principium amicitiam ponentem, et ut collectivum (*in so far as it gives unity*), Sphaerum efficiens, ut vero partem Sphaeri (*in so far as it is unity, the intelligible form of things*) materiam. Hoc ponens, inquit, et si

concedamus, amicitiam subjectum esse et ut materiam et at movens, at ratione different omnino. Si vero hoc, utrum quia movet, est amicitia, vel quia est materia. Oportuit ergo dicere, secundum quid hæc amicitia sit." (Serranus, *Ad. Aristot. Metaphys.* XII, et *Physic.* II, 8.—See Sturz, p. 227.)

conveyed by these two names appear to be so different one from the other.

70. In this way we can also explain those passages of various authors in which *friendship* and the *One* as professed by Empedocles seem to be two things, and not one only; for by carefully examining those passages, we find that they all refer to the production of unity in contingent things. Thus, for example, when Simplicius says that *friendship* produces the *One* in all things (οἱ ἦν (φιλίαν) πάντα ἐν γινέσθαι ὁ Ἐμπεδοκλῆς φησιν),* he simply means to say that the *One* by essence produces the *One* by participation, or *friendship* by essence produces *friendship* by participation.†

71. Hence, also, it is that Philoponus and Themistius compare the Empedoclean *friendship* to the *concept* or *idea* of things: καὶ ἔοικεν, says the first, ἡδιάνοια τῇ Ἐμπεδοκλείῳ φιλίᾳ, ἣτις συνετίθει τὰ ἐκ τοῦ νείκους διηρημένα;‡ since in ultimate analysis that *friendship* is nothing but the unity of intelligible being and of the order intrinsic to it. So likewise in a passage of Stobæus where, according to my belief, the teaching of Empedocles is expounded, although his name, together with some other words, seems to have been lost, we read that discord and strife are nothing but *species* (εἶδη δὲ τὸ νεῖκος καὶ τὴν φιλίαν).||

72. The Pythagorean *One* § was denominated by those philosophers in various ways;¶ and it was termed God, Apollo, Matter, Chaos.** Empedocles's *friendship* received similar denominations. The two first names are proof patent that those who used them regarded it as something

* *Ad Aristot., De Caelo*, III (see Sturz, sec. 10, p. 236).

† The other passages of ancient authors, where Empedocles is made to distinguish *friendship* from the *one*, may be seen in Sturz, sec. 10, p. 214 and seq.

‡ Philoponus, *Ad Aristot., De Anima*, L. III, q. 15.—Themistius, *In Aristot., De Anima*, L. III (Sturz, p. 238).

|| *Eclog. Physic.*, I (Karsten).

§ In the treatise entitled *Theolognumena Arithmetica* an account is given

of the different applications which the Pythagoreans made of their *One*; and first of all it is said that they referred it to the mind (τὴν μονάδα ἐκάλεον οἱ Πυθαγόρειοι νοῦν, εἰσαζοντι τῷ νοῖ). See Sturz.

¶ Hesychius: Πανάνθρωπον τὴν μονάδα οὗτοι ἐκάλεον.

** Meursius collected the passages of the ancients in which these denominations are used, in *Thesaur. Antiquit. Græcarum*. Gronovii, T. ix.

spiritual and intellectual, not material. How the appellation of *matter* may belong to it, we have also seen. But what about its being called *chaos*? If we reflect that the *One* is *being in general*, and that this may without any impropriety be designated as *first intelligible matter*, we shall at once see how the name of (intelligible) chaos may fairly be applied to it, inasmuch as in being in general there is not any distinct and particular being.

73. Here we can also see how ill founded is the censure by which Aristotle attempts to find Empedocles in contradiction with himself, because he sometimes says that *strife* is the principle of destruction, while at other times he attributes to it the production of material things. Clearly, if the Empedoclean *strife* is transported into the world of "intelligibles," it becomes that faculty by which the mind distinguishes things in the unity of being,* and therefore the faculty by which singular and finite beings are originated in the mind.† If, however, this is viewed in reference to the mind of the Creator, then real things are the result; because God operates by intellectual action.‡

74. So likewise we can see the nullity of the objections which Aristotle bases on the allegation, that "If it were true that the elements are known by us because our soul is composed of similar elements, we should also have to admit that, in order that we may be able to know all the things composed of elements, our soul must likewise be

* In a passage of Simplicius, Empedocles's *friendship* and *strife* are contrasted with the *mind* of Anaxagoras, thus: 'Οι τὸ ἀπειρον μόνον τιθέντες ὡς ἀρχὴν, καὶ μὴ προσλογιζόμενοι τινὰς ἄλλας αἰτίας ὡσπερ Ἀναξαγόρας μὲν τὸν νοῦν, Εμπεδοκλῆς δὲ φίλους καὶ εἰκός, ἡρξίστησαν πρὸς τὸ παντὶ ἡγήσασθαι τῇ τοῦ ἀπείρου φύσει καὶ τῇ ὁμοίᾳ ταύτῃ ἀρεῇ. *Ad Aristot. Physic.*, III (See Sturz, p. 169).

† Alexander of Aphrodisia writes thus: "Uno enim excepto, quem Deum ille (Empedocles) ac Sphaerum vocat, ab amicitia facto, res omnes a discordia per ipsum efficiuntur" (*Ad Aristot. Metaphys.*—See Sturz, p. 244).

‡ Philoponus, commenting on the productive action assigned by Empedocles to *strife* outside the Sphaerus—the intelligible and divine world—thus expresses himself: "Ponit anim (Empedocles) causam corruptionis rixam. Videtur autem et ipsa generare, extra solum Sphaerum.—Si enim non erat (rixam), unum erant omnia, et nunquam elementa gignerentur. Quando enim convenient in Sphaerum, constituit tunc rixam ut machinam quandam ad solvendum eum, et generandum elementa, per medium vero interponit et ipsum Sphaerum." *Ad Aristot. Metaphys.* (See Sturz).

composed of similar things."* Empedocles might easily reply, that compounds are found in ideal as well as in real elements; consequently, we can very well by means of the former compounds know the latter.

75. As regards what Simplicius and other authors say about Empedocles reducing his elements to two, and finally to one only, which he calls *necessity* or the *monad of necessity*, I shall merely observe that his reduction involves nothing inconsistent with truth. The reason is, that *being in general*, which [in my opinion] is the *One*, is also the principle of necessity, inasmuch as it imposes the condition in virtue of which that which is, is. Simplicius, however, considers *friendship*, not exactly in an absolute sense, namely, not in so far as it expresses the *One* in the many,† but rather as distinct from the *monad* above mentioned, according to a different aspect in which it is regarded. Hence, in other writers, instead of *μονάς τῆς ἀνάγκης*, we read *ὅλη της ἀνάγκης*.

76. Accordingly, we find that even as Empedocles derives all things sometimes from *unity* and sometimes from *friendship*, which is *unity* applied to *plurality*; so at other times he places *necessity* at the head of his principles and elements, as their cause; and rightly so, since intelligible being, from which all comes, is necessary and imposes on all things its necessary laws.‡

77. But here some one will ask: If *friendship*, or *unity*, considered in its application to plurality, is Empedocles's supreme principle; and if to *friendship* he opposes *strife*

* *De Anima*, I, vii.—The objections of Aristotle always proceed on the supposition that the elements in question belong to the real world; and this is a false supposition. One of those objections is, that God could not be cognizant of *strife*, because He cannot have any strife in Himself. But if to the real *strife* we substitute the ideal, the objection vanishes; because the idea of strife is not actual strife, nor any thing evil, nor in any way injurious to the Divine Essence.

† Ἐμπεδοκλῆς δύο ἐν τοῖς στοιχείοις ἴσχυαι τῶσιν ὑποθιμένοι, θερμοῦ καὶ ψυχροῦ, ἡγροῦ καὶ ξηροῦ, εἰς μίαν τὰς δύο συνικορῶσιν τὴν τῶν νείκων καὶ τῆς φιλίας, ὥστερ καὶ ταύτην εἰς μονάδα τὴν τῆς ἀνάγκης, ἀλλ' αὕτη μὲν ὡς ἐν, τὸ δὲ νείκος καὶ ἡ φιλία ὡς δύο. Καὶ οὕχ ὡς ποικιλικὰ μόνον, ἀλλὰ καὶ ὡς στοιχειώδη, ὡς ἡ διάκρισις καὶ ἡ σύγκρισις. Ἰσαλευσμεὶ γὰρ τούτοις. Simplicius, *Ad Aristot. Phys.*, I (See Sturz, p. 421).

‡ Ἐμπεδοκλῆς οὐσίαν ἀνάγκης αἰτίαν πρώτην τῶν ἀρχῶν καὶ τῶν στοιχείων. Plutarch, *De Placit. Philosoph.*, I, xvi (See Sturz, p. 169).

or non-unity (non-being) in order to limit unity and distinguish plurality in it; how, or through what *nexus*, does he from these two principles arrive at his four elements?

In the first place, we must remember that Empedocles, with Heraclitus and many other ancient writers, reduces the four elements to one only, namely, to fire, as the most subtle and most simple of all. This opinion (which we may say was common among ancient philosophers and is recorded even in Plato's *Timæus*) has been set forth by Lucretius in the following lines:

"Quin etiam repetunt a cælo atque ignibus ejus,
Et primum faciunt ignem se vertere in auras
Aëris: hinc imbrem gigni, terramque creari
Ex imbri, retroque a terra cuncta reverti,
Humorem primum, post aëra, deinde calorem:
Nec cessare hæc inter se mutare, meare
De cælo ad terram, de terra ad sidera mundi:
Quod facere haud ullo debent primordia pacto;
Immutabile enim quiddam superare necesse est;
Ne res ad nihilum redigantur funditus omnes."*

Here the fire of which the other elements are formed† is supposed to come from heaven; which seems an allusion to the intelligible world, whence Plato also derives it.‡ But Aristotle raises a difficulty which, however solid it

* Lucret., I, 782 *et sqq.*—Aristotle says also that Empedocles opposes all the other elements to fire (τῷ ἑνὶ πᾶσι τοῖς ἄλλοις πᾶσι ἀντιτίθεται. *De Generat. et Corrupt.*, II, iii). On this Alexander comments as follows: "Empedoclem primum causam efficientem distinxisse, usumque fuisse principis materialibus et quatuor corporibus pro elementis, at non ipsis parem honorem tribuisse, sed igni cætera opposuisse, ceu tria elementa sint una quædam natura" (*Ad Aristot. Metaphys.* See Sturz, p. 172). To this division into two, sundry authors refer heat and cold, dry and wet, as Empedoclean elements; because heat and dry belong to the nature of fire, and cold and wet to that of the other three elements. Thus are reconciled the different forms in which Em-

pedocles and his interpreters have presented this doctrine.

† Philoponus says that Empedocles's elements are not elements, because they are compounds. This, however, would not be true of the fire, but only of the other three (*Ad Aristot., Physic.* L. I, c. xii).—See Sturz, p. 173.

‡ Aristotle finds fault with Empedocles for saying that all the four elements are equal, and therefore cannot be transmuted one into the other (*De Generat. et Corrupt.*, L. II, c. III). Empedocles might perhaps reply that fire becomes the other elements by juxta-position without losing its nature; consequently all the elements, being equally fire, would be equal in nature.

may appear, serves nevertheless to make us see, both, that Empedocles's thought was directed to the intelligible world, and that Plato borrowed largely from him. Aristotle maintains that the Empedoclean theory did not explain the generation of things, and why? Because it taught that compounds are formed through *reason*. Now this agreed exactly with the ancient teaching of Parmenides in the part in which that teaching was true, and it simply meant that "What causes a being to be entitled to the name of compound, is unity; and unity is posited by the mind." Aristotle, however, insists that, to explain how things are composed and generated, a *real* cause should be assigned, not a merely ideal one. And he is right; but Empedocles's thought was not less true, and much more profound, namely, that it is the mind that makes the compound to be a being.*

78. All the elements, then, according to Empedocles, are reduced to fire; but how is fire connected with the two principles above named, *friendship* and *strife*?—Sturz shows that, for Empedocles, Unity, Chaos, Matter, Fire, were almost synonymous terms;† hence, in some passages of Aristotle, we read that Empedocles denied καὶ τοῦ πυρὸς εἶναι στοιχεῖον.‡ Now we have seen that, while, on the one hand, Empedocles used to call the Pythagorean *One* by the name of *friendship*, the Pythagoreans, on the other, called their *One* by the name of fire, whether it was that they took fire symbolically, or, as I believe, that they considered it to be the principle of the divine life and substance.||

* Aristotle, *De Generat. et Corrupt.*, L. II, c. iv.

† "Dixit igitur, eam ignis naturam habere, ita ut τοῖν, χάος, ἔδη, πῦρ pene sint pro synonymis habenda" (Sturz, sec. 9, p. 171).

‡ Aristotle, *De Xenoph.*, *Zenone et Gorgia*, c. II.—*De Generat. et Corrupt.*, I, vii. (See Sturz, p. 172).

|| Plutarch, in the life of Numa, writes: "It is said that Numa built the Temple of Vesta of a round form and intending that the fire should be kept always burning in the middle of it, thus to imitate, not indeed the form of the

earth, as if the earth itself were Vesta, but the form of the whole universe, in whose centre the Pythagoreans think that the fire is placed which they call Vesta and Unity (καὶ τοῦτο Ἐστίας καλεῖται καὶ μονάδα); as also they think that the earth is neither motionless nor in the centre of the circulation, but circling round the fire, nor yet that it is to be regarded as one of the most essential among the parts constituting the world. This same opinion concerning the earth is said to have been held by Plato in his old age, his belief being that the earth occupied a place away from the

Since, then, Empedocles's *friendship* is the *intelligible unity*, we are bound in reason to allow that he admitted also an *intelligible fire*, as Plato does in the *Timæus*, an essential fire (ideal essence), in respect of which the material fire is only a kind of image, has not the essence of fire,* but the igneous quality as an accidental form.† So, indeed, we are told by an ancient writer, who says expressly, that in Empedocles's system all things were made to come from *friendship* and *strife*, but the *monad* was the mental fire (πῦρ νοερόν),‡ which he called God, the name which the Pythagoreans and Platonists gave to everything belonging to ideas.

79. Now, if we recognise the fact that the elements spoken of by Empedocles are, as we have explained, of two kinds, 1° intelligible elements, ideas, and, therefore, true essences, 2° material elements, and, therefore, not essences, but partaking of essences in the way taught by Plato; we are at once able to reconcile the apparent contradictions recurring in ancient authors, who sometimes present the Empedoclean elements as eternal, simple, equal, immutable, incorruptible, and at other times do the very contrary.

80. It is true that Empedocles described also the sense

centre, while the centre itself, the principal place of all, was occupied by some other and better kind of matter." —Here we see the Copernican system known and divined by the ancients.

* Since, in interpreting the little that remains to us of the writings of Empedocles, we must be guided by the doctrines of the Italic School to which he belonged, I think it right to observe that, according to this school, followed also herein by Plato, the (ideal) essence was the source of truth, even as the sense was the source of opinion. Hence the author of the *Theologumena Arithmetica*, in expounding the Pythagorean doctrine on the *One*, says: ἐπὶ τούτων δὲ τὴν οὐσίαν αὐτοῦ ἀληθείας (See Sturz).

† If we were to rely on an assertion which Plato puts into the mouth of *Timæus*, this philosopher of Locris would have been the first to propound

the theory of the intelligible elements; for we read in the *Timæus* (I quote from the translation of Ficinus): "Nullus profecto ad hoc usque tempus eorum (elementorum) generationem ostendit: sed quasi notum sit quid ignis et reliqua, sic de illis verba facimus, eaque mundi primordia constituimus, cum nec syllabarum quidem, nedum elementorum, vicem tenere apud homines mentis quoquo modo compotes debeant." It must be noted that the *quid sit ignis* (πῦρ ὅ, τί ποτὶ ἴσται) in the Platonic language means the *intelligible essence*.

‡ Ἐμπεδοκλῆς—τὴν τοῦ πάντος ἀρχὴν νοεῖν καὶ φιλεῖν ἴσται, καὶ τὸ τὰς μονάδας νοεῖν πῦρ τὸν θεόν. Pseudo-Origenes, *Philosoph.*, c. ii (See Sturz, p. 275). Cedrenus also (in *Synopsi Historiar.*, T. I) calls this mental fire of Empedocles τὸν θεόν.

as consisting of elements;* but he did this either because, like all the other ancients, he failed to seize accurately on the distinction between sense and intelligence,† or else because, like Plato, he distinguished in the soul the sensitive part from the intellective, attributing to the first the elements as a kind of vesture, and making the second to consist purely of ideas.‡

81. But to see better how near Empedocles came to Plato, and how he forestalled him in the doctrine of ideas, let us turn back to the *intelligible world*.

We find in ancient writers two sets of testimonies apparently in direct opposition to each other. One set lays it down as indubitable, that Empedocles posited *one world* only, and the other affirms that he posited two. Now,

* Simplicius says: 'Οὐχ ὡς τῷ Πλουτάρχῳ δοκῇ, πρὸς Ἐμπεδοκλέα ἀποτίνεται (Aristotle), ἡ τὰς αἰσθήσεων αὐταῖς τὰ στοιχεῖα τοῖς μύθοις (Ad Aristot., De Anima, L. II).—See Sextus Empiricus, *Adversus Mathematicos*, vii, 120; and other passages quoted by Sturz, p. 205.

† By direct knowledge, and therefore also by names, all the ancient philosophers, as also the mass of the uneducated, distinguished *sense* from *intelligence*; but not so when philosophic reflection came into play. Hence Aristotle (*De Plantis*, I, 1) tells us that Anaxagoras and Empedocles attributed sense and intelligence even to plants. Even Plato maintained that plants were animals (See Plutarch, *De Placitis Philosophorum*, v. xxvi), while Aristotle would have them to be animated, but not animals. Brucker thinks that Empedocles believed in a world-soul (*Historia. Crit. Philos.*, T. I, p. 1113); for which, however, he is reprehended by Tiedemann (*Système des Empédocléens*). But to maintain, as Empedocles did, that the whole world was fire and had intelligence, was a great deal more than to suppose the world to be animated. It is also certain that he attributed intelligence to brutes, as may be seen in Sturz, sec. 14, p. 353. Themistius likewise certifies that for Empedocles all the elements were animated and endowed with feeling, in these words: "Ignis enim non generatur, quemadmodum apparet, dum ex aëre oritur, in EOQUE

SENSATIO PER SE QUIDEM INEST: ita de aëre reliquisque statuendum erit" (*Paraphr. in Libros quatuor Aristotelis De Caelo*, III, 7). Plato, in the *Timæus*, manifests the same opinion, by joining sense and life with the first elements. Lastly, Heyne, in his commentary on Virgil (*Georg.* II, 483 *et seq.*), observes that, according to the ancients, the *præcordia* (σπέρμας πρᾶσιδας) were the seat of the movements of the animating principle no less than of the mind.

‡ Does not Aristotle lay himself open to the charge of calumny when, without adding a single word of explanation, he says that Plato supposed the soul to be composed of the four elements? The calumny seems most manifest when we read the *Timæus*, to which Aristotle refers us. In this sublime dialogue Plato represents God as composing the corporeal universe of the four elements, but, prior to that, creating the soul: "He constituted the soul as well by generation as by virtue, anterior to and more ancient than the body, for this reason, that it had to command the body subject to it." According to Plato, therefore, the soul is not composed of the four material elements. It is only when he explains how the soul was united to the body that he clothes it with a body. Then, and not before, he brings in the sensitive elements, which thus become in a certain way a part of it. But of this we shall speak later on.

for us it is an easy matter to reconcile these statements. If we consider that being is identical under the two forms, of ideality and reality, we must say that there is but one world. But if we consider the two forms—the ideal and the real—in which this one world exists, there is nothing to forbid our saying, with Plato, that there are two worlds, the one intelligible, the other sensible or real.

82. Sturz writes: "Nimirum si hanc Simplicii* et similitudinem traditionem pro vera habueris, Empedocles putandus erit alterum mundum intellexisse eum, quem nos quoque ita dicimus, adspectabilem omninoque in sensus cadentem, alterum νοητὸν et prioris EXEMPLAR statuisset. Illum nominasse legitur κόσμον, et plenum malorum existimasse."

But afterwards he says that it was an error of the *Neo-Platonists* to attribute to Empedocles the doctrine of the *intelligible world*: "Nec vero sic intelligi volo, ut mundi aspectabilis exemplar fuisse dicatur mundus νοητός sive σφαῖρος, quæ ratio haud dubie excogitata est ab Eclecticis et recentioribus Platoniceis, qui in quolibet antiquiori systemate philosophiæ cuperent invenire aliquid quod simile esset Platonis ideis, atque adeo etiam Orpheo idem dogma tribuerent,† sed, ut dixi, σφαῖρον explicandum puto de rudi et indigesta materia."‡ Karsten holds the same view.

It seems to me, however, that in this interpretation there is more of the scholar than of the philosopher. Indeed the discoveries made by recent critics have not tended to dispose these favourably toward the Alexandrian Eclectics. Unmistakable evidences of a partisan spirit were undoubtedly given by these philosophers in their eagerness to make it appear that all antiquity had gone in the direction of their system. They gave out supposititious books under the name of ancient authors; they curtailed and refashioned books that were authentic, and loaded them

* The following is the passage of Simplicius: "Ὁ Ἐμπεδοκλῆς διάφορα τῶν παρ' αὐτῷ κόσμων τὰ ἴδια ἔλεγεν, ὥστε καὶ ἐνόμισεν χρῆσθαι διαφόροις, τὸν μὲν σφαῖρον, τὸν δὲ κόσμον κυρίως καλεῖν (*Ad Arist.*,

De Cælo, I.—See Sturz, sec. 11, p. 277).

† Brucker, *Hist. Crit. Philos.*, T. I, p. 395, 2nd Edit. Lipsiæ.

‡ Empedocles Agrigentinus, sec. 11.

with no end of arbitrary glosses ; and they made it an invariable rule to take their own system as the sole key for the interpretation of all the previous systems. Seeing all this, critics have become very mistrustful, and, as a consequence, have been led to push criticism to such lengths as even to render it an instrument of scepticism.

To temper this extreme, to which the confining of criticism to a particular question of this kind easily leads, we should, it seems to me, view the question complexly, that is, take it in conjunction with the unity of the schools and traditions, the analogy of opinions, and all the circumstances of times as well as of minds. Now, a criticism founded on this wide basis will make us see,

1° That the Alexandrian Eclectics would not have been able to claim on their behalf the authority of the ancients, or attribute new books to them, unless they had found in the original writings and in the memories extant at the time something to which they could appeal in justification of what they were teaching, some real trace of their own system ;

2° That antiquity presents to us two great Schools : one having for its distinctive character individual *reasoning*, and personified in Thales ; the other having for its distinctive character *traditional authority*, and personified in Pythagoras,* and continued in Plato. To this second School belong the Alexandrian Eclectics, who, therefore, exhibit so strong a tendency to seek for a confirmation of their *dicta* in the authority of the ancients. Now this historic and traditional character of the Platonic school evidently points to the conclusion that its doctrines were really collected by it from the traditions of antiquity, and not of its own inventing.

3° Moreover, it is certain, from indubitable proofs of fact, that the foundation of the Platonic doctrine, which consists in the contemplation of *ideal being* and its divine properties, goes up to the most remote antiquity, and, I have no hesitation in saying, to the first traditions of man-

* *New Essay On the Origin of Ideas*, vol. I, 276-7.

kind. All the East is full of it. According to Moses, every thing is created through the Divine Word; Ach-moth, namely, the exemplar wisdom of the universe,* is declared to be the first-born before all creatures, not only in the inspired books, which are so much anterior to the Italic School, but also in the Indian laws of Manou,† under the name of Mahat, or Buddhi. It was from the Hebrew Schools, at the feet of Gamaliel—not from the Neo-Platonists—that Saint Paul learnt how God “from things invisible made visible things,” in which sentence is contained the pith and substance of whatever is good in Platonism.

Now this doctrine, which is likewise the Platonic doctrine of the invisible and intelligible world, could not have been obliterated from the memories of the human race. On the contrary, it was carried everywhere in proportion as colonization spread out into new parts of the earth, and it was preserved in the several religions and mythologies.‡ Least of all could it have been ignored by the philosophers of the Italic School, to which Plato unquestionably belonged—men who, as is well known, were eminently distinguished by their thirst for knowledge, by their zeal in collecting ancient doctrines, for which purpose they took the trouble of making long journeys all over the East, and of whom not a few were undoubtedly acquainted with the inspired writings, as we have said of Pherecides (11), and has also been abundantly proved by Huet. Now one of the things that I should particularly wish to see would be a carefully compiled “History of Platonism before Plato.”

83. Again, if Empedocles was a hearer of Parmenides, and also of Anaxagoras,|| famous for having separated the

* *Restoration of Philosophy, &c.*, B. III, c. 52.

† Manou, B. I, nos. 14, 15.—It is singular to see how, according to Koullûk, a commentator of the book of the laws of Manou, the Indian philosophy makes the *instinctive intelligence* issue from the *supreme soul* in virtue of the creative energy, under the

form of *ethereal light*. Does there not seem to be a singular analogy between this *ethereal light* or instinctive intelligence of the Indians, and the *elementary fire* of Heraclitus and Empedocles?

‡ See Plutarch's book *On Isis and Osiris*.

|| Such is the opinion of Fazellus (See Sturz, sec. 3, p. 18).

mind from all material concretion, is it possible that he should have been completely in the dark with regard to the doctrine about essences? I do not pretend to say that he taught that doctrine in clear terms; but it is enough for my purpose that he should have put it in an obscure manner, perhaps because he was loth to interfere with that universal form under which it had been announced by Parmenides.

84. And here I may observe, that in the doctrine of the School of Elea the first and fundamental question must be distinguished from questions regarding its application. When those philosophers came to such secondary questions, I should not wish to deny that they fell into one or other of the ditches, so to speak, which lay on either side of the path, namely, materialism and idealism. For the School of Elea proposed its fundamental question dialectically, in its greatest abstractness and universality as follows: "Whether it would be right to say that all things are *one*, or it should rather have to be said that things are *many*." The term *one* being taken in the absolute universality of its meaning, there was no occasion for asking "whether this *one* was spiritual or material, real or ideal." These were questions of application, and would come afterwards. In the first question, then, the point was simply to know if one spoke truly and with propriety by saying that "all things were one;" the difficulty began and ended there. What those philosophers really aimed at was to verify the *essence of unity* in things, quite apart from any other quality or property that unity might have. With a view to compass this end, they principally considered the variableness of the forms presented by bodies, and, as a result, they concluded that under those forms there must be a substance, as the unchangeable and permanent subject of them all. This substance being one, it followed that the whole was one.

But there soon came the question of application, "What was that *one*?" And then some of those philosophers began to regard the subject which lay one and un-

changeable under all forms, as a sort of *materia prima*, formless, and therefore susceptible of receiving any form. But on further reflection, they, or others of the same school, saw quite clearly that this formless matter, although admissible as a mental abstraction, could not be a subsistent thing. Hence they pronounced it an entity unperceivable by the senses, incorporeal, belonging purely to the intellectual order; and so they landed in Platonic idealism.

It must in fairness be confessed that for the thinkers of those times to get at the exact truth in so subtle a point was far from easy. Indeed, it was difficult to understand that this was a case of that "Law of Synthesism," which prevails in all nature, the law in virtue of which, matter, though really distinct from forms, cannot subsist except as united with them. Again, it was difficult to realize the fact that the matter or substance itself, whatever might be the way, operated in us through that force whereby it modifies our body and becomes a term of our sense-perception. Lastly, it was difficult to recognise that not the material substance alone, but also the various forms presented by bodies, had, equally with the substance, or better than it, a correspondent in the immutable and eternal ideal.

85. These things were not always seen with full distinctness even by Plato. Thus, in the *Timæus*, he passes from the substance of a thing to the idea without perceiving that the same could be done by starting from the accidents. Having distinguished between a piece of soft wax and the various figures that can successively be impressed on it, he goes on to observe that to the question, "What that figured thing is," no one would think of replying, "It is such or such a figure;" all would feel bound to say, "It is wax, and the figure is a mere accident, changeable at any moment, and constituting only a *quality* of the thing, not its *quiddity*." Then, applying this to the elements and resting his attention on that of fire, which, by reason of its subtility, was supposed to originate all the others, he distinguishes two kinds of fire: the one essen-

tial and intelligible, having the *quiddity* of fire, the other sensible, having merely the igneous *quality*. Now the latter is manifestly the distinction which separates the *ideal* from the *real*; only that, instead of *quality*, Plato should have said *categoric mode of being*, although, owing to the poverty of philosophic language in his time, he was unable to do so. Clearly, then, he confounds this distinction with that which separates the substance from the accidents—a manifest oversight, inasmuch as substance and accident can alike be ideal as well as real.

What makes it easy to slip unawares from the first of these distinctions into the second, is, 1° That the separation of the substance from the accidents takes place by an act of the mind, whilst at the same time there always remains in the real thing the quiddity corresponding to the idea of substance; 2° that the substance presents itself to the mind as immutable, and hence similar in this property to the idea, likewise immutable. Thus, two things, namely, the real substance and the ideal substance, because both permanent and both object of the mind, were confounded in one, the *ideal essence*.

Another and still more effectual cause of the mental confusion in question was this, that it is the mind alone that supplies *being* to the things cognized, so that, until the mind has supplied being they remain unknown; and, on the other hand, the being so supplied corresponds to the substance in so far as the substance is the act in and by which the accidents exist. Hence the facility with which those ancient thinkers came to regard the substance as of a purely intelligible nature, as *ideal essence*. In fact, it is so regarded at this day by the philosophers of the German School. But any one who has a keen eye for observation will see that a distinction must be made between the *real substance*, and the *being* which is supplied by the mind, and through which the substance itself becomes cognizable by becoming a *being*, or, in other words, the *object* of that judgment whereby we affirm it existent.

Now all these questions were still enveloped more or

less in obscurity at the time of Empedocles, and not even Plato* or any of his followers were able to bring them out in full distinctness. Nevertheless, they were agitated, and the truth was seen now on one side, now on another, and pronouncements also were made, although not without contradictions, ambiguities, and too partial views. There is, however, in all this enough to convince us, that Empedocles was no stranger to the theory of the intelligible and ideal world.

86. 5^a Indeed, if we examine his undoubted enunciations, it will be difficult to reconcile them with the supposition that the *One* propounded by him was nothing more than the *materia prima*, or brute matter apart from forms. Thus,

(a) One does not see how the term *world* (κόσμος) could apply to a matter like this, 1^o because matter without any form cannot exist, and if it has a form, it is no longer immutable; 2^o because κόσμος signifies, not a formless matter, but a world formed and ornate. On the other hand, for indicating, not brute, but *intelligible* matter, σφαῖρος would be a better term than κόσμος;

(b) The eternal and immutable world of Empedocles, like that of Heraclitus,† consists of fire; therefore it is not formless. Again, the same world, far from being inactive matter which becomes any thing one pleases to make it, is, on the contrary, an active cause αἴτιον ποιητικόν as Theophrastus says,‡ and as may be gathered from Aristotle

* One of the greatest difficulties Philosophy has had to contend with in its progress lay in the formation of the instrument necessary for the expression of human thought, I mean language. The earliest philosophers were obliged to take the language of the people, an excellent instrument for the purpose of everyday life, but often most unsuitable for very abstract speculations. Tiedemann attributes in great part to the imperfection of language the obscurity of Plato's *Parmenides*: "Accedebat, quod vocabala, quorum frequentissimus est in hac disputatione usus, ambigua sunt non in Græcorum modo, sed in omni sermone, priusquam ab accurate

philosophantibus significationes distinguantur et constituentur, quod in prisca Græcorum lingua pluribus ea laborant ambiguitatibus, quam in recentiorum ulla" (See his *Commentary on Parmenides*). I have elsewhere called attention to the ambiguity of the term λόγος and to the equivokes to which it gave rise.

† The words of Heraclitus regarding the two worlds have been preserved by Clement of Alexandria (See *Stromat.*, L. v).

‡ *Ad Aristot. Physic.* I (See Sturz).—Aristotle finds fault with Theophrastus for insinuating that *act* goes before *substance*; while, on the other hand, Theo-

himself, who, in his interpretation, describes it as doing everything, and invariably calls it God (*θεός*)—a term which we cannot suppose Empedocles to have applied to brute and formless matter, seeing that all antiquity placed divine things in ideas;

87. (c) Even if it were thought right to give to formless brute matter the appellation of *world*, we should still have to say that this kind of world is less perfect than the world already clothed with forms and ornate. Empedocles, on the contrary, declares his intelligible and divine world to be more excellent than the sensible one. Even Sturz, although he does not take the same view as I do of Empedocles's intelligible world, seems, nevertheless, disposed to grant that Empedocles called it *σφαῖρος*, as also to admit other things concerning it which are attributed to this philosopher by Proclus and other Platonists.*

Now the name *σφαῖρος* was given to this same world, and the spherical form assigned to it, in order to indicate its superiority to the sensible world, which Empedocles considered to be of an elliptical form. As to why the ancients regarded the sphere as the most perfect of figures, and hence adopted it as the symbol of perfection, we have

phrastus proves, on the authority of Empedocles himself, that *matter* cannot, by itself, be the cause of anything: "Terra ex se nec plantam producit, nec semen ullum, at sol movet terram cæteraque elementa et semina ad plantam generandam. Hinc veritatis vi convincitur, ponentes materiam omnia precedere, velint nolint, causam actu existentem adesse fateri, ut Empedocles litem et amicitiam" (*Paraphr. in xii Metaphys.—Aristot. I.*).

* Having hinted at the doubt raised by Brucker to the effect that the Empedoclean doctrine of the two worlds might, after all, be a mere invention of Neo-Platonism, Sturz goes on as follows (sec. 11): "Sed tamen, cum etiam de aliis placitis consentiat philosophia Neo-Platonica et Eclectica cum Empedoclea, v. gr. de amicitia et discordia (V. Brucker, T. II, p. 421), cunque etiam duplicem solem statuisset

Empedocles legatur; parum abest quin in eam inclinem sententiam, ut nonnulla ex iis, quæ tradidisse vidimus Proclum et cæteros, quorum verba supra apposui, pro veris habenda esse arbitrer. Certe ipsam de sphæro doctrinam valde celebratam olim et in usu communi frequentem fuisse, docet bis verbis Eustathius" (*Ad Odys.* p. 1554, l. Cf. Gataker; *Ad Antonin. Philos.*, 12, 3): ἰστίον καὶ ἦτι παρὰ τὴν σφαῖραν, ἢ παρίνυμον ὁ Ἐμπεδοκλῆσιος σφαῖρος, τίπαιται τινὶ παλαιῷ εἰς αὐτοῦ βραχυλόκα τὸ, Χαρίδης ὁ μικρὸς ἐν πενθ' ἡμέραις σφαῖραν ἐκείνην τὴν πατρίδα δύσταν ὅτω σινεῖς τρέγγουσι ἰταυθαί καὶ ταχέ (See Sturz, p. 291).—I will add, that whatever be the way in which Empedocles's two worlds are understood, the fact of his having posited them need not cause any surprise when it is remembered that they were posited also by Heraclitus, whose own words have been preserved by Clement of Alexandria.

it explained in Plato.* He says this was because the sphere had been proved to be the figure of the greatest capacity and that which contained all the other figures, beginning with triangular ones up to those terminated by polygons of an indefinitely great number of sides.

Hence the sphere seems to me a most fitting symbol for representing *ideal being*; for, even as the sphere virtually contains within itself all the other figures, and at the same time is never exhausted by them, so ideal being virtually contains the essences of all determinate and finite beings, and at the same time is never exhausted by them.

On the other hand, if Empedocles gave to his σφαῖρος the most perfect of all forms, it is plain that he could not have meant by it a matter which—as is the case with real matter—from the fact of its not having any form, would be imperfect.

(d) Moreover, the *Sphaerus* of Empedocles was formed by *friendship*, the cause, according to him, of all good. Consequently, it could not be formless real matter, which, by itself, has no order, organization, or harmony.

(e) Plutarch and other ancient writers tell us that as Empedocles posited two worlds, so he posited two suns, the one called ἀρχέτυπον, or also πῦρ ὄν,† that is to say, *fire-being*, fire by essence, the other called φαινόμενον.‡ Now the sun cannot be the primitive matter devoid of all inequalities and forms; because it is an organized being, informed and, according to the ideas of the ancients, perfect. Consequently, the first of these suns could not have been intended to mean the material chaos, or the primitive real matter. Neither could the second; for the word *archetype*, according to the use made of it by all antiquity, plainly indicates the *primal idea* of the sun. The same is shown by the word *fire-being*, which points to an intelligible, not

* "Cui (tuendo) et figuram maxime congruam et decoram dedit. Animal quippe hoc, quod intra suum ambitum erat animalia omnia contenturum, eam figuram precipue requirebat, in qua

figuræ omnes continerentur." (The *Timæus*).

† Plutarch, *De Placitis Philosoph.*, II, xx.

‡ Stobæus is my authority for this.

to a sensible nature. It is true that Empedocles places the *archetypal sun* in another hemisphere of the world, and says that the visible sun is as it were a reflex of that; but ought we not to attribute this manner of speaking to the poetic language used by this philosopher? It seems, therefore, that by this other hemisphere we must understand the sphere of the celestial fire, essential, living, intelligent—a sphere which Empedocles imagined as a spherical zone placed at the farthest distance from the earth; so that the hemisphere would not be a sphere cut horizontally, but a sphere cut in spherical zones, the one contained within the other.*

(f) Lastly, from the fragments that remain to us, we gather that Empedocles distinctly posited an intelligible world (κόσμος νοητός) as the type of the sensible world (κόσμος αἰσθητός); and this decides the question.†

88. 6° Ammonius‡ and Tzetzes|| have preserved the verses cited above (52), in which God is described as “A mind holy, immense, and embracing with its Providence the whole universe.” But if the Divine Mind knows all things, we are bound to suppose that it has in itself the similitudes of them all, on the principle of our philosopher that “Like is known only by like.” Is it not reasonable, then, to believe that he placed the archetype or ideal of the world in the Divine Mind?

89. 7° It also appears indubitable that Empedocles, like all the ancient philosophers, transformed ideas, as also feelings, virtues and vices, into Gods, Genii and Demons. Hence Sturz§ compares the Demons of Empe-

* In fact, the words of Empedocles are: ἀνταΐγιμαί εἶναι τοῦ περὶ τὸν πυρὸς τοῦ ἡλίου.

† See *Fragm.*, edit. Peyron, p. 50.—Simplicius, *In Aristot. Physic.*, p. 7, and *De Caelo*, p. 121 (In Sturz).

‡ *Ad Aristot. περὶ ἡμάνειας*, l. 94.

|| *Chyliad.*, 7, 520 et sqq.

§ In interpreting such fragments as remain to us of Empedocles, it is well to take into account what we know for certain of the doctrines of Heraclitus of Ephesus, whose near contemporary, and, as I believe, in great part a disciple,

Empedocles was. Now we know that Heraclitus believed in a “common and divine reason” (κοινὴ καὶ θεῖος λόγος), by partaking of which man in his old age comes to know the universal and the true; whereas through the senses he knows the variable and the singular (See Aristot. *De An.*, L. I, 2 and 3.—Plutarch, *De Placit. Philos.*, IV, 3.—Sextus Empir., *Advers. Logicos*, I, 126 et sqq., 206; *Hypot. Pyrrh.*, III, 230.—Stobæus, *Ed. Physic.*, I (See Sturz. sec. 4, p. 11).

docles to the cabalistic Sefhiræ. Now, if this is so, how coherent would it be therewith to assume, that inasmuch as the elements of which Empedocles composed the soul were Gods, and constituted the soul intelligent by reason of their being similitudes of the elements composing the world, they were taken by him in the sense of pure ideas!

90. Besides, if Empedocles had regarded the soul as composed of material elements, there would have been no need of explaining how it became united with the body, since it was itself a body. And yet we are told by Plutarch and other ancient authors that Empedocles represented the soul as of divine origin, and its union with the body as a condemnation to banishment, away from the Gods; and this is also the view taken of the soul by Plato. He likewise affirmed the soul to be immortal, and punished according to its faults by fire.* These Empedoclean doctrines, which bear an evident impress of the Pythagorean School, are, as Brucker† himself acknowledges, incompatible with a soul formed of material elements; hence he conjectures that Empedocles had posited two souls, the one divine, intelligent, born of the world-soul, the other sensitive, made up of material elements. Sturz discards‡ this conjecture as arbitrary, wholly unsupported by any ancient authority, without, however, offering a better in its stead.

Now, although Empedocles did not perhaps accurately distinguish sense from reason, attributing both even to plants,|| it would be vain to deny that in the fragments we have of his works he rejects the testimony of the senses as a means for discovering philosophic truth, but will have everything to be considered by the mind.§ His language

* Phil., *De Exilio*, c. xvii; *De Esu carnium*, Orat. I; *De Iside et Osiride*, c. xxvi.—Stobæus, *Serm.* clviii, edit. Wecheliana, Francofurti, 1581.—Porphyrius, *Sentent.* 41.—Iamblicus, apud Stobæum, *Ecl. Physic.*, c. 52.—Sallust. *De Die et Mundo*, c. iv, in *Opusc. Mythol.*, Gale, p. 251.—Plotinus, *Ænead.* IV, L. VIII, c. i, et L. IX, c. v.—Æneas Gazæus, *In Theophrast., Dialog.*

De Animarum immortalitate. — Origenes, *Contra Celsum*, I.

† *Historia Critic. Philos.*, T. I, 1117.

‡ Sec. 14, p. 354.

|| Hence many authors collected by Sturz affirm that Empedocles admitted the Pythagorean Metempsychosis, and taught that the human souls transmigrated also into fruits and plants (p. 462 et seq.).

§ See verses 48-53 in Karsten. The last of them is:

Γύιον πίστιν ἔρκει, νότι δ' ἢ δῆλον ἔκαστον

on these points is very much the same as that used by Parmenides.* Moreover, there is nothing improbable, nay, there seems to be every likelihood in the belief expressed by Sextus Empiricus, that Empedocles distinguished man's reason itself into *human reason* and *divine reason*, the first having for its office to discourse on sensible things, and the second to discourse on intelligible things.† Now, if the elements of which Empedocles composed the soul are, as I have thus far endeavoured to show they ought to be, taken for *ideal elements*, the similitudes of the real ones, then everything in the Empedoclean system is brought into accord, inasmuch as these ideal elements would constitute the divine reason, to which the nature of the human soul, intelligent and immortal, is reduced.

91. I shall close this long discussion by quoting the judicious remarks of Professor V. Cousin: "Il ne faut pas être si prompt à trouver des extravagances. L'histoire en général, et en particulier l'histoire de la philosophie, a son plan, ses lois, et une marche régulière. Les grands systèmes que produit l'esprit humain ont un sens raisonnable qu'il faut pénétrer: un homme ne devient par célèbre parmi ses semblables par des pures folies."‡

III.—LEUCIPPUS, DEMOCRITUS, EPICURUS.

92. These philosophers materialized the ancient system by substituting *matter* for simple *being*, which in that system was the source of every thing. The preceding thinkers had confounded the object with the subject, and described the soul as made up of the (ideal) beings of which it had intuition. Those beings, because abstract and therefore ideal, had a truly objective nature; but, being now changed into material beings, they ceased to be objective and became mere extra-subjective entities.

* See verses 53-56 in Karsten.

† Sextus Empiricus (*Adv. Logicos*, I, 122) says that Empedocles placed the criterion of truth, not in the sense (*οὐ τὰς αἰσθήσεις*), but in right reason (*ὀρθὸν*

λόγον), and that he distinguished right reason into divine (*θεῖον*) and human (*ἀνθρώπινον*).

‡ *Nouveaux fragmens Philosophiques*, &c. Zénon D'Elée.

Hence, to speak accurately, the error of this School regarding the nature of the human soul lay "in the confusion of the subject (soul) with the extra-subjective (matter);" whereas the error of the Idealistic school had lain "in the confusion of the subject (soul) with the object (ideal beings)."

93. This corruption of the ancient system may have been due, among other causes, to the imperfection of the language in common use, which those who first began to philosophize were obliged to employ (85 *n.*). We have seen that Empedocles called the ideas of the elements simply by the name of *elements*, that he reduced them all to *fire*, and then took the *essential fire* as synonymous with *friendship*, *being*, *sphærus*, the *Supreme God*; either because life manifests itself by heat, or because fire is in a sort of way a symbol of the intellectual light, or, possibly, because he made a real confusion in his mind of the properties of fire with those of the Supreme Being, living by His own essence. From this God he derived the human souls; which was in fact the same as the teaching of Pythagoras, who, as Diogenes Laërtius testifies, considered the soul to be an emanation from the *central fire* (15). Parmenides, likewise, regarded the soul as of an *igneous nature*;* although, according to the distinction laid down by him, this was one of those views which belonged to *opinion*, not to *truth*. Hence Leucippus, a hearer of Parmenides, adopting a similar language, reduced the soul to *fire*. Democritus defined it "An igneous mixture of the things that can be perceived by way of reason, are globular in form, and have the virtue of fire."† Thus the atomistic corruptors of the ancient philosophy retained very nearly the same manner of speaking as the ancients, while entirely changing their doctrine.

94. And that the atomistic theory of the Greeks was really nothing else than the corruption of a more ancient system free from expressed materialism, will appear all the more likely when we consider that, as Posidonius

* Stobæus, *Ecl. Physic. De Animæ naturâ*.

† Stobæus, *Ibid.*

assures us,* the "doctrine of atoms" came from Phœnicia, in which country it had been invented from a most remote antiquity by Moschus; while, on the other hand, Pherecides and Thales had, as a matter of fact, derived their doctrines likewise from Phœnicia (11). I do not mean by this to affirm that the Phœnicians, and their neighbours the Hebrews, possessed at so early a period the Platonic doctrine on ideas in that explicit and analytic form in which Plato expressed it: this would be saying too much. Yet I believe that they spoke of beings without defining whether they meant them as ideal, or as real. They spoke of being as it presented itself to their mind, without as yet submitting it to an accurate analysis. So, in my opinion, did Parmenides speak of it. He drew no precise distinction between the ideal mode of being and the real mode. Now the atoms considered in this way were merely "*indivisibles*;" and they at a later period received two very different definitions. Some called them ideas, others called them real bodies. Hence the two great Schools into which antiquity came to be divided. Both Schools, however, confounded the human soul with the term severally fixed upon by each. Those philosophers who determined the being under investigation as ideal, confounded the subject (the soul) with the object, because being, in so far as it is ideal, is *object*; those who determined it as real and corporeal, confounded the subject with the extra-subject, because the real, as such, is not, properly speaking, object, it is simply an *extra-subjective* entity.

95. As, however, these last felt bound to explain in some way how it was that the soul came to have knowledge of things, they had recourse to *images*; nevertheless, these images, being of the same nature as the soul, were confounded by them with it. Tenneman briefly expounds the images (εἰδωλα) of Democritus as follows: "The soul consists (such is his doctrine) in globular atoms of fire,†

* See Sextus Empiricus, *Advers. Physicos*, I, 363.

† Aristot., *De Anima*, L. I, c. 2.—Plutarch, *De Placit. Philosoph.*, L. IV, c. 4.

which impart movement to the body. Maintaining throughout his atomic theory, Democritus introduced the hypothesis of images (εἰδωλα), a species of emanation of the external objects, which impresses itself on our senses, and from the influence of which he deduced sensation (αἴσθησις), and thought (νόησις). In the same manner, consistently with his theory, he accounted for the popular notions of the Deity; partly through men's incapacity to understand fully the phenomena of which they are witnesses, and partly from the impressions communicated to them by certain beings (εἰδωλα) of enormous stature and resembling the human figure, which inhabit the air."* This theory, however, does not seem to have belonged exclusively to Democritus. Plato, in the *Menon*, assures us that Empedocles also was of opinion that there issued from the bodies external to ours certain emanations called ἀπορροίας, or ἀπορροάς, in the form of tiny little images, which entering through the pores of our eyes produced vision; nay, Plutarch attributes this doctrine to the Pythagorean school itself.†

96. This was afterwards the system of Epicurus. I shall merely observe, that as the doctrine of these philosophers contains different kinds of error, it may appropriately be distinguished into different classes of erroneous systems (15-20). But let us come to

IV.—PLATO.

97. Aristotle, in his work *On the Soul*, after stating the wholly material way in which Democritus explained how the soul moves the body, that is, in the same way as one body moves another, charges Plato with teaching the same error because of certain things he said in the *Timæus*. To me this seems to be one of those calumnies by which the Stagirite was wont to depreciate his master, catching

* [From the translation of A. Johnson, M.A., London, 1852.]—See Contr. Schwarz, *Dissert. De Democriti Theologia*, Coblenz, 1718, 4°.

† *De Placit. Philos.*, L. I, c. 15—See also Galen, *Histor. Philosophia*, c. x.—Stobæus, *Eclog. Physic.*, xvii.—Alexander Aphrodiseus, *Ad Aristot., De Sensu*.

at his words, and giving a rigidly literal interpretation to what was said in allegory or some other figure of speech.

98. That Plato did not always accurately distinguish ideas from the intellective soul, but described the soul as consisting of the similitudes of all things, seems to me beyond doubt. It was an inheritance received from the philosophers that had preceded him. Parmenides had laid down the germ of this error by the dictum: "Being and thought come to one and the same thing" ($\tauὸ γὰρ αὐτὸ νοεῖν ἐστὶ τε καὶ εἶναι$). Empedocles, as we have seen, held the same doctrine, and Plato would naturally have it present to his mind.

99. Nevertheless, he did sometimes distinguish ideas from the mind in a very clear manner. Thus, in the first *Alcibiades*, Socrates directs attention to the fact that *reason* was not Socrates himself, that is his soul, but only the instrument or means which Socrates used in discoursing. Had Plato been consistent, he would have found in this simple observation enough to discover the exact nature of the human soul. But the connection of ideas is, with us, so intimate, that even to this great philosopher it happened at times to be off his guard, and, like his predecessors, to take two entities so distinct as are the reason and the reasoner, for one and the same thing—the soul. From this allegation, however, as we shall see presently, he might perhaps have cleared himself; not so from the charge of having spoken somewhat obscurely and ambiguously.

100. In the *Timæus*, Plato begins his description of the formation of the world-soul by saying that God composed it of three several natures, namely: 1° The indivisible essence, which is always identical; 2° the divisible essence, which perpetually changes by being divided into the various bodies, in other words, the *materia prima* from which bodies were to be drawn; 3° a kind of middle essence, which partakes of both the others. Of the mixture of these three things God made the one soul that was afterwards to animate the corporeal universe by conjoining,

through a display of power and with a certain violence (*βία*), the two opposites just named—the essence that is always identical, and the essence that is always changing.

Now, if Plato had placed the essence of the soul in that middle principle which conjoins the identical with the mutable, he would not have gone far from the truth, inasmuch as he would then have placed it in the rational principle, which is exactly the connecting link between the two extremes—the corporeal reality and ideal being. But, by making the identical itself (ideal being) a component part of the soul, he confounded the soul with ideas, or divine things, and so divinized it; as, on the other hand, by placing a part of the soul in the mutable, that is, in corporeal matter, he confounded the soul with bodies, and so materialized it.

It was on the second of these two weak sides that Aristotle based his attack upon his master's system on the soul. At first he limited himself to putting Plato on a par with Empedocles materially interpreted, and therefore charging him with the error of having made the soul to consist of the four material elements. But afterwards he went so far as to represent him as a rank associate of Democritus; which, I feel bound to say, seems to me more a satire than a seriously intended censure.

101. As to the imputation that Plato composed the soul of the four material elements, the following passage would be quite enough to show its hollowness: "We must say that the mind belongs to nothing else but the soul. Now the soul is a thing altogether invisible to the eyes. But fire, water, air, and earth are bodies, and we see them."*

102. But since, according to Plato, God drew the soul, in part, also from that nature which is divided among bodies (*τῆς αὖ περὶ τὰ σώματα γιγνομένης μεριστῆς*), we must see whether this divisible nature which enters into the formation of the soul consists of the four material elements. Now, I feel no hesitation in saying that it does not. An attentive consideration of what he says in the *Timæus* will

* In the *Timæus*.

place it beyond all reasonable doubt that by *divisible nature* he meant *space*—a fact which we shall find it very useful to keep in mind, while at the same time it redounds in no small degree to the honour of this great man, who must have been aware of the truth, which I venture to think I have proved to demonstration, namely, that space is a constant and natural term of the human soul.*

103. He begins by laying it down that this nature is "the receptacle of the generation of all bodies"—an expression perfectly applicable to space—in the following way: "In the former part of our discourse we distinguished two species; now we must add a third. For, to explain the points we had then under consideration, those two species were sufficient: the one, of the nature of exemplar, essentially intelligible, and always identically the same; the other, an imitation of the exemplar, generated, and visible to the bodily eye. Seeing, therefore, that nothing more was required, we did not say anything of the third species. But now the progress of the discourse seems to demand that we should try to set it forth, although, indeed, it is involved in difficulty and obscurity. What force, then, and what nature must we deem this species to have? Certainly no other than that of being the receptacle, and, as it were, the nurse of all these things that are generated."

Then proceeding to unfold the nature of this entity necessary to explain the constitution of the world, he begins by showing that the four material elements change one into the other; whence it follows that none of them is, by essence, either fire, or air, or water, or earth, because if they were such by essence they would not change. There must, therefore, he concludes, be a *substance*, which is not any one of them, but can become one or the other, as the case may be; and this substance, not having any determinate and visible form, can be nothing else than an intelligible essence. Let us hear himself: "These things being so, it must needs be confessed that there is a species

* See *Anthropology*, 161-174.

which is always the same, without generation and without destruction, neither receiving into itself anything from without, nor issuing from itself into any other thing whatsoever, not, again, perceivable by any of the bodily senses; a species, therefore, belonging purely to the intelligible order, seen only by the mind."

Some interpreters have thought that Plato intended by these words to describe the *materia prima*; but this is certainly not so, unless we take the *materia prima* as signifying the "intelligible," that which is always identical (the *substantial essence*, confounded by Plato with the *real substance*); the opposite of which—consisting, of course, in that which is never identical—is described by our philosopher immediately after, thus: "But there is also another species which agrees in name with the one just mentioned, is similar to it, is sensible, generated, always sustained by another and always in a state of agitation, is generated in some place and again disappears from it, and can be comprehended by opinion through the senses."

So far we have Plato's description of the identical and the mutable, of the *substance* (ideal and real, confounded by him) and the *bodies with their forms* (specific and individual). Now, the nature which Plato posits anteriorly to the existence of bodies as a constitutive part of the soul is neither the *identical*, nor the *mutable*, nor *ideas*, nor *body*: what is it, then? I have said it is *space*. Indeed, Plato himself says so expressly in the very next period: "The third species is space ($\chi\omega\rho\alpha$), which never fails, and furnishes a place to all things that are generated." With exquisite discernment and propriety he declares that space, "without producing a sense of touching, is touched, and that it is opinable after a certain adulterine manner." He says *adulterine manner*, because, while according to him opinion comes from the senses, no one sees how space falls under the senses, nor yet how it can be perceived along with bodies, since it is not a body.* On the other hand,

* For the Theory of Space see *New Essay on the Origin of Ideas* (Kegan Paul, Trench, & Co., London), 820-830, and 837-844. Also, *Anthropology*, 154-174.

considering that *space* or extension is the foundation of every *continuum*, even corporeal, and that the continuum cannot exist save in a simple; it remains that space must belong to the *form* of the sensitive soul. Thus Plato says, though obscurely, something similar to what was proposed by Kant when he called space "a form of the external sense;" although, as I have shown elsewhere, Kant erred in making *space* a subjective form instead of a term of the fundamental feeling (extra-subjective form).

104. Having the form of space connatural to him as a sensitive being, man finds it difficult to conceive things free from space. The reason is, that to do this he must make use of his mind alone without his animal sensitivity being in the least associated with it; and this is to him a matter of extreme difficulty, because from nature and habit he is accustomed to do the contrary. Hence Plato very pertinently, and in his usual style of matchless philosophic eloquence, subjoins: "Lastly, when we turn our attention to this (viz., to space), we seem as it were to be dreaming; for we imagine that whatever exists must of necessity be in some place, must have a position assigned to it in extension; and whatever is not either on earth or in heaven we suppose not to exist at all. Occupied with these reveries, we cannot, from all these sensible things around us, and others similar to them, abstract that nature which is altogether vigilant and truly existing (τὴν αὐπνον καὶ ἀληθῶς φύσιν ὑπάρχουσαν). Hence, also, we cannot discern what rightfully belongs to the image; for, indeed, the very thing in which the image is made does not belong to it. The image always exhibits itself as the phantasm of something else, in which it must, therefore, be, that so it may partake in some way of the essence. It could not exist otherwise."*

Thus, according to Plato, that portion of the soul which is mutable, and in which, as in a sort of matrix, all that is subject to generation takes place, consists in *space*, which therefore constitutes a kind of form of the sensitive soul.

* *Timæus*, p. 349. Edit. Bipont.

Clearly, then, the composition of the Platonic soul has nothing to do with body, or any material elements, which Plato repeatedly affirms to be bodies, and hence produced by God subsequently to the soul.*

105. The other charge brought by Aristotle against his master's theory of the soul is based on the motion which the latter attributes to the soul itself. Here it must be borne in mind that Plato had adopted the Pythagorean principle, "Like is known by like." In composing, therefore, the soul of that which is always and essentially the same, and of that which is continually and essentially changing, and again of a middle substance embracing in itself the other two, his aim was to explain how it is that the soul knows things of an opposite nature—things, that is to say, that are essentially immutable, and things whose nature consists in constantly becoming different from what they are. The soul, he thought, knows both kinds in itself, because it has in itself the nature of both.†

106. But as he expressed his thought by saying that the soul knows these things by "revolving on itself," like, so to speak, the planets which revolve on their own axis (αὐτὴ τε ἀνακυκλουμένη πρὸς αὐτήν), Aristotle at once charged him with having attributed corporeal locomotion to the soul, and thus fallen into the same error as Democritus. In truth, this was mere carping at words, mere cavilling; for no one could have affirmed the spirituality of the intellective soul more emphatically than did Plato, who described this soul as produced by God at a time when bodies were not as yet in existence. It is true that as regards its inferior or sensitive part he believed it to be constituted by that nature which was divisible among bodies, namely, by space; but not even to space itself did he ever attribute a local motion similar to that of bodies.

* Πρῶτον μὲν δὴ πῦρ καὶ γῆ καὶ ὕδωρ καὶ ἄρ, ὅτι σώματά, ἐστὶ, ὁλόν που καὶ παντί. P. 351. *Ed. Bip.*

† Ἄτε οὖν ἐκ τούτου καὶ τῆς θατέρου φύσεως, ἐκ τε οὐσίας τριῶν τούτων συγκραθεῖσα μοιρῶν, καὶ ἀνάλογον μερισθεῖσα καὶ ξυνοθεῖσα,

αὐτὴ τε ἀνακυκλουμένη πρὸς αὐτήν, ὅταν οὐσίαν σκεδαστὴν ἔχοντός τινος ἐφάπτηται, καὶ ὅταν ἀμείριστον, λίγῃ κινουμένη διὰ πάσης ἑαυτῆς, ὅταν τ' ἂν τι ταυτὸν ᾖ, καὶ ὁ τοῦ ἂν ἕτερον, &c. *Timæus*, p. 316, *Ed. Bip.*

This Aristotelian imputation, therefore, is simply groundless.

107. It only remains to see whether there be any grounds for attributing to Plato the error of having confounded the essence of the soul with its terms. In the first place, there can be no doubt that some of his expressions contain this error: such are all those in which he distinctly states that the soul is the compound result of three natures. For example, he says of God: "And having taken those three beings, He made them all into a single species" (καὶ τρία λαβὼν αὐτὰ ὄντα, συνεκέρασατο εἰς μίαν πάντα ἰδεαν).*

108. But great men like Plato do not remain constant in their errors. Hence we find other passages indicating that he has become aware of the fact that the human soul must, properly speaking, consist in that middle essence which, on the one hand, touches the ideal world, and, on the other, reaches space and then body; so, however, that these its terms are not itself, but only conditions essential to its existence, and therefore conjoined with it in virtue of the law of synthesisism—whence the extreme facility of confounding them with it. Besides the passage in the first *Alcibiades*, to which I have referred above (99), the *Timæus* itself supplies us with expressions from which this great genius seems to have all but caught sight of the truth. In the passage last quoted, only the middle part of the soul is called by the name of οὐσία;† although in other places this name is given also to the two extreme parts. The middle part is said to partake of the two extreme ones, which implies that this is the part that constitutes the unity of the soul, and, by conjoining in itself the essentially identical and the essentially mutable, is in a position to

* So also, very soon after: Ἐκ τριῶν ποιησάμενος ἓν, &c. *Timæus*, p. 312-13, Edit. Bipont.

† This is one of those words which, in Greek, are ambiguous, for it is used equally to indicate *substance* and *essence*. In another place, speaking of the formation of the soul, Plato says: μετὰ τῆς οὐσίας, which Ficinus renders

"Postquam vero duo illa (*the identical and the mutable*) cum substantia commiscuit." Then, soon after, he says that that *one* which is the soul is composed ἐκ τῆς ταυτοῦ καὶ θατέρου καὶ τῆς οὐσίας, the word οὐσίας being here manifestly intended to refer to the middle part of the soul only.

know both alike.* Now that which knows both the one and the other is the soul; therefore, according to Plato, the essence of the soul cannot be placed in the two extreme parts, nor yet, properly speaking, in all the three parts together. It can be placed solely in the middle one, although this is closely bound with the other two—bound with them, I say, not as *parts* of its own substance, but as its natural *terms*, and, therefore, necessary conditions of its existence. Nevertheless, these terms are said to belong to it because, and only because, it is from them that it receives its character and act as a human soul. Hence, in Plato's theory, the acting principle is always the middle part; and I believe that this is what he also sometimes calls *reason*, in so far as it partakes of that which is always identical. Wherefore he says that *reason*, namely, the substance of the soul (which partakes of the identical, and of the mutable), in so far as it is united to the identical, by perceiving the sensible, that is the mutable, forms *opinions* and *persuasions* which are firm and true (δόξαι καὶ πίστεις γίνονται βέβαιοι καὶ ἀληθεῖς); but when it turns to what is rational, namely, to the essentially identical, it becomes enriched with *knowledge* characterized by necessity (νοῦς ἐπιστήμη τε ἐξ ἀνάγκης ἀποτελεῖται); † which two modes of knowing correspond perfectly to the two reasons of Empedocles, the human (λόγος ἀνθρώπινος) and the divine (λόγος θεῖος) (90).

In this passage in the *Timæus* there are several other things deserving of notice.

109. 1° The first is, that Plato attributes no kind of knowledge whatever to the sensible part of the soul, but reserves all knowledge, even that of the sensible, to reason alone. He was thus more keen-sighted than are the thinkers of the modern German School, who, dividing

* Τῆς ἀμεριστοῦ καὶ αὐτὴ κατὰ ταυτὰ ἰσχύουσης οὐσίαι, καὶ τῆς αὐτῆς περὶ τὰ σώματα γιγνομένης μεριστοῦ, τρίτον ἔξ ἁμφοῖν ἐν μίῳ συνικεράσασθαι οὐσίαις ἰδοῖς, τῆς τε ταυτοῦ φύσεως αὐτῆς περὶ καὶ τῆς τοῦ ἑτέρου, καὶ κατὰ ταυτὰ ξυνίστησθαι ἐν μίῳ τοῦ τε ἀμεριστοῦ ἀντὶ, καὶ τοῦ κατὰ τὰ σώματα μεριστοῦ. *Timæus*, p. 312. *Ed. Bip.*

† Plutarch thus reports the opinion of Plato: "Plato (animam esse dixit) substantiam intelligentem, a se ipsa mobilem, et juxta harmonicum numerum agitatum. *De Plac.*, IV, ii.—So also Theodoret, *Græc. Affect.*, *Serm.* V.

knowledge into *empirical* and *rational*, attribute the first to the senses—an error due to the influence of the sensism which those thinkers have unconsciously imbibed from their age, and from which they have never been able entirely to free themselves in spite of the seemingly high flights of transcendental speculation.

2° The second is, that although Plato makes the soul to consist also of the “mutable,” so that it may be able to know this too (on the principle that “Like is known by like”); nevertheless, he does not think it enough for the soul to be *sensible* in order to be able to know the “sensible,” but requires besides that it should possess *reason*, which is the formal principle of the knowledge of the sensible itself, and contains the *ideal similar*; whereas sense contains, not the similar, but only the action of corporeal things.

110. 3° The difference assigned by Plato between *opinion* or *persuasion* and *necessary knowledge*, does not consist, as some have supposed, in this, that the former is false or illusory, and the latter true; for even to the first, provided it be rightly formed, he attributes *δόξαι καὶ πίστεις βέβαιοι καὶ ἀληθεῖς*. Hence this excellent distinction corresponds with that which I have elsewhere established between *relative or subjective knowledge* and *absolute knowledge*; the first of these having for its material the mutable feeling, and the second an immutable object, although the *knowledge itself* is in both cases equally immutable.

111. 4° Lastly, it is worthy of remark that the soul is said by Plato to possess the “necessary” and “knowledge” when *reason* directs its attention to the “rational” (*τὸ λογιστικὸν*). Here we see that the Athenian philosopher, notwithstanding his lofty genius, had not risen up so high as to know that there must be a *Reality* having the same necessity and immutability as the rational or ideal; and in this failure, as I have elsewhere pointed out, lies the seed of all the errors of the Platonic system, which degenerated into rationalism, and promised every thing to man from the cold region of ideas.

112. In the fourth book of the *Republic*, Plato does not

speak of the three parts of the soul. He simply declares that, "in the human soul there are two kinds of entities, the one superior in excellence, the other inferior; and that when the first dominates over the second, man is said to be stronger than himself; which is praising him. But when, from bad education or some depraved habit, the better side, giving way, is overcome by the pressure of that which is its inferior, man is blamed for it as for an opprobrious thing, and he is said to be weaker than himself." In this passage, we find nothing said of the two extreme terms of the soul, in so far as they are different from it. There remains only the middle part, which is truly the soul, and receives something from both of them; and what it receives from the one that has an immutable nature is its better entity, while what it receives from that which is always changing is its inferior entity.

113. We have seen Aristotle finding fault with Empedocles because, while he described the soul as consisting of the four elements and the two principles in order that, by having in itself the similitude of the various things, it might be able to know them, he omitted to explain how it could know also the compounds together with their actions and passions; for these could not all be in the soul (74). Probably this difficulty was suggested to Aristotle by what he had learnt at the school of Plato. In fact, the latter supplied what was wanting in Empedocles's explanation of the human cognitions. In the first place, he stated clearly whatever remained uncertain or ambiguous in the enunciations of a philosopher who had written in poetry: then he made good the omission. He defined the sense in which the principle, "Like is known by like," should be understood. For this principle has two significations. The first is, that things are known through ideas, which are, as it were, the similitudes of things.* The second is, that,

* Perhaps it was in view to this that *Timæus*, in Plato, proposed the following as a new question, whose solution had never been attempted before: "Whether the sensible fire be the

essence of fire, or only an image, as it were, of it, and therefore whether it be necessary to posit an essential and purely intelligible fire?"

to know a given nature we must have experience of it, receive it or have it in some way in ourselves, in our own feeling, in default of which the matter of cognition is wanting, and we cannot have any but a void and general knowledge of that nature. Both these significations are true. That the similar causes its like to be known is a true principle, whether applied to the form of cognition or to its matter. And although this illustration is not found in express terms in Plato, it may nevertheless be gathered from his utterances, as when he attributes to *reason* the formal knowledge even of sensible things, and yet at the same time requires the soul to be sensible, as a condition without which it could not know them.

114. As to the addition furnished by Plato to fill up the void that had been left by Empedocles, it was due to his having seen a truth as beautiful as it is rich in consequences—namely, that the soul has, inborn in it, the laws of order and harmony, laws that are an echo of those of the universe, which, for this reason, they enable it to understand. Nor is there in it only the harmony of distribution, but there is also that which is contained in ordered and corresponding movements, such, for instance, as take place in the dance. Doubtless, the soul could not feel what there is of beautiful and harmonious in the universe and in works of art unless it had the foundation of it all in its own self. Indeed, there is no such thing as a merely *objective* harmony. Every harmony consists in a relation of the *object* with the *subject*, and resides in the subject. If, please God, I am able to publish that part of *Agathology* which I call *Callology*, but particularly that branch of Callology which goes under the name of *Æsthetics*, it will be seen how in the wonderful and profoundly wise constitution of the sensibility of the soul lies the supreme principle of this latter science, or part of a science.*

115. Plato, then, attributed motion to the world-soul (to the likeness, of which, according to him, the human soul was afterwards made); nay, he declared it to be self-

* See *Anthropology*, 430-494.

moving (αὐτὸ ἑαυτὸ κινουῦν),* and described its movements as regulated by times, and harmonious, in every respect like those of the celestial bodies. He said that it moved in the same way as two circles that are continually revolving the one inside the other; the external and larger one being composed of that which is always identical and immutable, the internal of that which is always changing. Subsequently this internal circle was divided by him into as many orbits as were those of the planets which that soul was destined to animate. And it is worthy of note, that in Plato's theory that which is always changing, the *materia prima*, is placed within that which is always identical; and on this account God is said to have made the bodies within the soul,† whilst the soul in the midst of itself (where the bodies are) extends far beyond the heavens, surrounding and enveloping them.‡

* *De Legibus*, L. X.

† "Postquam igitur secundum Creatoris illius mentem tota animæ constitutio absoluta fuit, mox omne corporeum INTRA IPSAM effinxit, mediumque mediæ accommodans apto modulamine copulavit." *Timæus*, p. 315. *Edit. Bip.*

‡ "At illa a medio per omne usque ad cœli extrema se porrigens, eique extrinsecus circumfusa, seque in se ipsa convergens, ita sempiternæ sapientisquæ vitæ in universum tempus divinum dedit exordium." *Timæus*, *ibid.* It is true that, a little before, Plato had said that God placed the soul of the world in the midst of it (ψυχὴν δὲ εἰς τὸ μέσον αὐτοῦ θέει); but this must not be taken to mean that He placed it in the midst of the corporeal world; because the question there is about the entire world, of which the soul is the principal part. Another reason why those words should not be understood in this sense is, that we ought not to suppose that such a man as Plato would, just a few lines after, fall into a glaring contradiction with himself. It seems much more reasonable to suppose that he here alludes to the *middle* part of the soul itself, that part which reaches, on the one hand, the "essentially identical," and on the other, the "essentially mutable," and in which the substance

of the soul properly consists. The context goes in favour of this interpretation; for in the preceding period, to which the words εἰς τὸ μέσον αὐτοῦ refer, Plato, far from speaking of bodies alone, speaks of a future *God*, made a perfect body out of all perfect bodies: Οὗτοι δὲ πᾶς ὄντι αἱ λογισμαὶ θεοῦ, περὶ τὸν ποτὶ ἐσόμενον θῆον λογισθεῖς, λείον καὶ ὀμαλὸν, πανταχῇ τι ἐκ μέσου ἴσον (which seems to refer to the soul), καὶ ὅλον καὶ τέλειον ἐκ τέλειον σαρμάτων σῶμα (which refers to the body of the universe) ἰποῖναι. And that Plato did not place, or, to speak more accurately, did not confine the soul within the body, is evident from this, that after having said that God placed the soul in the midst of the body (the future God) and distended it in all directions, he subjoins that God surrounded externally the whole body with it, thus intimating that the soul exceeds the body. The words immediately following those I have just transcribed are these: ψυχὴν δὲ εἰς τὸ μέσον αὐτοῦ θέει, διὰ παντός τι ἔτιναι, καὶ ἔτι ἔξω τὸ σῶμα αὐτῇ περιέκλινψι. Now, it should be observed that, according to Plato, the soul exceeds the body in so far as it is composed of the "essentially identical," namely, of ideas, as he very soon after gives us to understand by distributing the soul into two circles, the one external and the other internal,

116. Hence Aristotle, seeing the soul described as continually turning round on itself and composed as it were of various spheres, and at the same time hastily taking all this in a material way, threw ridicule on such a doctrine, and found it easy enough to demonstrate its falsity. But if Plato's words are taken in a reasonable sense, and due allowance is made for that animated and poetic style in which he seemed to delight, it will be found that even in these modes of expression his great mind saw admirable truths. My own interpretation of his description of the world-soul, and of the circles of which he composes it, as well as of the harmonious movements which he assigns to them, would be as follows :

117. 1° The extended cannot exist save in the simple; consequently the body is in the soul : this I have proved in another place, and it is exactly what Plato says. The sensible appearances, however, deceive us in this matter. As what falls under our external senses is the contained, namely, the body, not the container, namely, the soul, it seems to us that the latter is hidden inside the former, and, so to speak, covered by it ; whereas, according to the pronouncement of reason, the fact is the other way.

2° *Extension* may be considered under two aspects : 1° *in itself*, 2° in its *relation* with the sentient principle belonging to the soul. *In itself*, it is essentially extended, and we can assign in it parts, limits, changes of parts and limits, as also movements. But its relation with the sentient principle is not extended, because it is simply a relation of *sensibility* (*Psychol.*, 250). Hence extension, in so far as it is the form of the felt, is not extended, inasmuch as the principle in which it resides, and indeed has its origin, is simple. Accordingly, we may distinguish two kinds of extension, the one extra-subjective, the other subjective. The subjective extension exists in an unextended mode in the soul *qua* sensitive ; and hence, if we under-

and saying expressly that "the larger and external circle is that of the 'identical nature,' the internal that of the

'nature which is always changing.'"
 τὴν μὲν οὖν ἕξω φεραν, ἐπεφύμισεν εἶναι τῆς
 ταυταῦ φύσεως, τὴν δ' ἑστῶς, τῆς βατίζου.

stand Plato's doctrine in this way, there is no absurdity in admitting that he attributes extension to the world-soul, and distinguishes it into various circles, so as entirely to correspond with the form of the material universe which it has to animate, and which is its term. For this is precisely what takes place in the human soul in so far as it imparts life to the body. Beyond all doubt, the soul has in it the extension of its body, though in a simple mode, as we have said. No one will deny that to *feel* pain or pleasure, for example, in two square inches of our body is a different thing from experiencing that feeling in one square inch only; for, in the first case, the term of the sensation (the felt) is more extended than in the second, and so the sensation itself is said to be more extended in the one than in the other.

Now we must remember that the animal has what I have called the fundamental feeling extending to all the sensible body and to unlimited space. This means, that to the extra-subjective extension there corresponds in the soul a similar subjective extension; or, to speak more accurately and more in conformity with Plato's mode of expression, that to the subjective extension existing in the soul there corresponds the extra-subjective extension existing in the body as perceived by the external sensories, and that the latter is perceived by means of the former, with which it is commensurate. Indeed the extra-subjective owes its very existence to the subjective, according to the principle we have laid down, "that the continuous extended exists in virtue of the simple wherein it resides." If, therefore, the whole universe is viewed as Plato views it, namely, as a single animal, the obvious conclusion will be that in the soul of this animal there is a corresponding corporeal extension, conformed in the same way as the extra-subjective extension of the bodies which compose the corporeal universe divided into circles and spheres; and this is precisely how Plato represents the extension of the soul.

3° It follows from this, that as motion is nothing but a

change in the places which bodies occupy in extension or space, there must be also in the soul a subjective movement corresponding to the extra-subjective movement undergone by bodies. In the contrary supposition, the movement of bodies could in no way be perceived by the soul; in fact, it would not even exist, since movement is a change in the continuous, and the continuous is formed by the simple, in which alone it can exist.

118. It was, therefore, without just reason that Aristotle flung at his master the imputation of having ascribed mechanical motion to the soul. He does not seem to have known the distinction between the subjective extension and motion peculiar to the soul, and the extra-subjective extension and motion peculiar to the body; or to have understood that the extension and motion assigned by Plato to the world-soul is of the first, not of the second kind. In the *Phædrus* Plato distinguishes the motion belonging to the body from that belonging to the soul, and from the nature of the latter he infers the soul's immortality. The soul, he says, moves from within itself, such being its nature; the body receives its movement from without. If, then, motion lies in the very nature of the soul, this nature must always be moving, and therefore living; for nothing but a living thing can be self-moving.* Herein we see plainly that, according to Plato, 1° the soul has the cause or principle of its motion within its own self,† 2° the motion of the soul is of an entirely different kind from that of the body; for the extra-subjective motion to which the body is subject can never be a nature, it being purely an extrinsic accident; but the subjective motion proper to the soul is nature, and every nature is stable and firm.

119. 4° By means of this internal motion of the world-soul Plato explains all the movements that take place in

* Ἀθανάτου δὲ περιβαλλομένου τοῦ ὅψ' ἑαυτοῦ
ειρημένου, ψυχῇ οὐσίαν τι καὶ λόγον τοῦτο
αὐτὸ τις λέγει οὐκ αἰσχυρίζεται πᾶν γὰρ σῶμα
δὲ μὲν ἔξωθεν τὸ κινεῖσθαι, ἀψυχον δὲ δὲ
ἰνδοθὲν αὐτὸ ἐξ αὐτοῦ, ἡ ψυχὸν ὡς ταῦται
οὐκ αἰσχυρίζεται ψυχῇ. εἰ δ' ἔστι τοῦτο οὕτως

ἔχον, μὴ ἄλλο τι εἶναι τὸ αὐτὸ κινεῖν, ἢ
ψυχῇ ἐξ ἀνάγκης ἀγίαντον τι καὶ ἀθάνατον
ψυχῇ ἂν εἴη. *Phædrus*.

† Οὕτω δὲ κινήσεως μὲν ἀρχή, τὸ αὐτὸ
κινεῖν. *Ibid.*

the universe ; and this proves him to have been aware of that principle which was accepted by all antiquity, and of which I have availed myself in this work, namely, that "the movement of bodies supposes an incorporeal principle, either sensitive or intellective." Indeed, if those which it is the fashion with modern writers to call *brute forces* are admitted merely as a profession of ignorance, we may let them pass ; but if it is maintained that there really are brute forces in the sense of excluding sensitivity, then I have no hesitation in saying that such forces are nothing but a product of the imagination, or rather of ignorance degenerated into rashness, which, dressing itself up in the garb of science, pronounces absurdities. Aristotle was quite right in combating the explanation which Democritus and Philip the Comic gave of how the soul moved the body. The soul moved it, they thought, in the same way as one body moves another, and they referred, as an example, to the wooden Venus of Dædalus, which was made to move by quicksilver playing through a certain mechanism which the maker had cunningly contrived within it. Aristotle justly urged that, if this explained motion, it did not explain quiet, that is, it did not explain why the animal from motion returned to quiet and from that again to motion. To explain all this, he said, we must suppose "that the soul moves the animal through a kind of choice and intellection."*

Now, although Aristotle associates Plato with these two materialists, he does not dare to bring against him the same objection. In truth, Plato does not make the soul communicate motion to its body as one body communicates it to another, thereby losing so much of its own motion. He endows the soul, not with motion alone, but also with the principle of motion (*κινήσεως ἀρχήν*), and consequently with the perennial source of continually renewed motion. And as every power passes to its second acts according

* *De Anima*, I, c. iii. The reader will not fail to notice that Aristotle, by here endowing the animal with the

power of choice and intellection, gives us a fresh proof of the *sensism* with which his philosophy was infected.

to certain laws, so likewise the principle or power of motion passes to its acts according to its own peculiar laws, which, for the sensible motion, have their foundation in the body informed by the soul, and, for the intelligible motion, in universal being by which the soul is informed. To these two terms, it will be remembered, are reduced the two extreme parts assigned to the soul by Plato.

Aristotle takes the trouble of demonstrating that the intellective soul cannot have corporeal dimensions, and that "intellection resembles quiet rather than motion." Now what he says is quite true if it is understood as excluding material parts and material motion; but it does not hold if it is understood as referring to sensible parts and movements in regard to the sensitive soul, and to ideal parts and movements in regard to the intellective soul. For the identical parts and the identical movements exist in a given way in matter (viz., with relations of parts and places), in another way in the sensitive soul (viz., with the relation of sensibility), and in a third way in the intellective soul (viz., with the relation of entity), as has been set forth in the proper place.*

* For the way in which the Platonists replied to the objections brought by Aristotle against the motion attributed by Plato to the soul, see Macrobius (*In* *Somn. Scipionis*, L. II, c. 13-16).—Also Huet, *Quæst. Alnet.*, L. II, c. viii, a. 3.

CHAPTER V.

FOURTH CLASS OF ERRONEOUS SYSTEMS :—THOSE THAT
CONFOUNDED THE HUMAN SOUL WITH GOD.

120. The philosophers of whom I have spoken in the preceding chapter deified the soul because their reflection had not advanced far enough to distinguish between God and the idea. The latter being, on the one hand, possessed of divine characters, and, on the other, confounded with the soul, it naturally followed that the human souls were so many deities. Hence these philosophers belong alike to the third class of erroneous systems on the nature of the soul, and to the fourth, of which I have now to treat.

121. The original error of this system lies in the confusion of the object of the intelligence—intelligible or ideal being—with the intelligence or mind which has the intuition of it. This is *Subjectivism*, or the system which takes the object thought for a modification of the thought itself. It is the error of Galluppi, the most common, indeed a universal, error of our times, the sad legacy of Sensism. It is true that Subjectivists, who reduce the Object, the Idea, Truth to a mere element, accidental or substantial, of the soul, do not all equally draw the frightful consequences which their error contains within its bosom. Many do not see these consequences from want of sufficient penetration. Others, frightened at the prospect of them, stop half way, or else try, by arguments, which in fact are mere futilities, to evade them. But Protestantism having taken to philosophizing, it has, in Germany, fearlessly brought out every one of them to the very last. Religion disappeared, and Rationalism remained.

122. The subjectivism of the Alexandrian Platonists regarding the intellective soul is sufficiently delineated in the following statements of Porphyry: "The mind is not the principle of all things. For the mind is many things (*πολλὰ γὰρ ἔστιν ὁ νοῦς*), and the One must precede the many. That the mind is many things appears from this, that it perceives things that are many, not one and nothing else besides it. If, therefore, the mind is the same as those things (*εἰ οὖν αὐτὸς ἔστιν αὐτοῖς*), and they are many, the mind also must be many things." Then he seeks to prove that the mind is the same as the things perceived, from this, that it considers them in itself, differently to what takes place in the sense and the imagination. "But these things (the external things, and the pictures of the imagination) are comprehended in such a manner, that each of the two powers (the sense and the imagination), not by looking into itself, apprehends the thing, whether subject to the sense or not; whereas the mind catches hold of the thing by looking into itself (*ἀλλὰ συνεύοντος εἰς ἑαυτὸν καὶ ἑαυτὸν θεωροῦντος*); for if it should cease to consider its own functions, it would understand nothing at all. Accordingly, as the sense is posited by means of that which is felt, so the mind is posited by means of that which is understood. But the sense perceives by going outside of itself, because that which is felt is placed in matter; whereas the mind perceives, not by going out of, but by looking into, itself. —Hence the mind must be conjoined with the things which it understands. If these things are referred to the mind, and the mind considers itself, it perceives, and perceives with itself, and, by looking at itself, perceives those things also. But inasmuch as many things fall under the understanding (since the mind does not consider the One but the many), it follows that the soul itself is the many. As, therefore, the one precedes the many, so it is necessary to make the one precede the mind."*

* See Stobæus, *Eclog. Physic.*, I, xi. Hence the mind which the Platonists posited, resulting from many minds;

which agrees with what we have said of the elements of Empedocles.

123. The only thing I now wish to point out in this doctrine is the confusion it makes between the mind and the things conceived by the mind ; and I beg the reader to take note of the reason given to justify the conclusion that the mind and the things it conceives are one and the same. The whole proof of a thesis so opposed to common sense is reduced to this : "The things perceived by the sense are external ; therefore they are not the sense : the things perceived by the mind are internal ; therefore they are the mind : consequently the mind perceives them by looking into itself, and if it ceases to consider its own functions, it understands nothing." But calm internal observation of the fact as it really is will show that this proof is altogether inconclusive and vain. Let us see :

124. 1° The fact of the object of the mind being *internal* is no proof that the object is the mind itself, unless it were shown that there is nothing internal save the mind alone, or that it is impossible for an incorporeal entity to exist in another likewise incorporeal ; but this has never been and never could be shown ;

125. 2° The word *internal*, applied to the object of the mind, is incorrect, because it signifies a local relation, such as exists between bodies ; whereas the object of the mind, properly speaking, is neither outside nor inside, since it does not, like bodies, occupy any room in space, and is therefore absolutely devoid of local relations ;

126. 3° If by *internal* is meant *united* with the mind, then this term expresses the truth ; for certainly the objects intuited or perceived by the mind are united with it. But to be united with the mind, and to be confounded and identified with it, are two widely different things ;

127. 4° Again, if by internal is meant *united*, then it is not true that the term of sense is external ; because the term of sense cannot be felt or perceived unless it be united with the sentient principle. Indeed, so united is the term of sense with the sentient principle, that this does not, in feeling or perceiving, distinguish the term from itself. It simply feels or perceives its term and itself in it, so that

one sole feeling is the result. The object of the mind, on the contrary, is united with the mind in such a manner that the mind cannot intue it or perceive it except as *object*, not merely distinct from, but opposed to itself, *subject*.

The illusion of supposing that the sense perceives the objects as distinct from, or, as modern philosophers put it, *external* to itself, arises in the following way :

The bodies different from our own are external to ours. Now, we confound the sensorial organs, which belong to our body, with the sentient principle, which is the soul. And since those bodies are external to our sensorial organs, we say that they are external to the sentient principle, which is not a body at all. We do not reflect, (*a*) that before feeling external bodies, we, by means of the subjective and fundamental feeling, feel our own body which is the immediate term of that feeling ; (*b*) that we do not feel external bodies except as united with our own through the *action* which they exert on it—an action which is felt, not in those bodies, but in ours, and is therefore united with our sentient principle as immediately as our own subjective body itself.

The same illusion arises also from the phenomena of sight, in which bodies at a distance seem to be perceived by the eye ; likewise from the phenomena of active motion, whereby those bodies are approached by us. Now the theory of both these classes of phenomena was not yet understood at the time of the Alexandrian Platonists. I have, in the *Anthropology*, explained them by having recourse (*a*) to unlimited space, which is the immediate term of our fundamental feeling, (*b*) to the association of sensations, and to the judgments which we mix up with them.*

128. 5° If we consider that the bodies external to ours are perceived, not by the sense only, but by the mind also, the argument I am combating loses even the semblance of truth. Indeed, it is the mind, and the mind alone, that can perceive things at a distance, whereas the sense perceives

* *Anthropology*, 164-174, 180, 192-196, 211, 246.

only those that are present to it and united with it by the relation of sensibility. And as regards beings that are purely ideal and possible, or else spiritual, I have already observed that since they do not occupy any place, they are neither external nor internal, distant or near (119, 125).

129. 6° If, then, the fact of the object being united with, or, to say better, present to the mind, does not involve any logical necessity of the two being identified, so that when the mind thinks of an object it thinks only of itself, what will be the right philosophic method for ascertaining whether this identification exists as a matter of fact or not? Clearly no other than carefully to observe how *the fact itself takes place*, and when the fact has been duly verified, not to pretend to deny it by reasoning, according to the logical axiom, *Contra factum not valet argumentum*.

The fact to be verified, then, is this: "Whether, when our mind thinks of a mountain, a tree, an animal, &c., real or possible, it believes its own self to be the object of that thought, and, consequently, believes that mountain, that tree, that animal, &c., real or possible, to be its own self."

Nobody outside the walls of a lunatic asylum would dream of answering such a question in the affirmative. But our subjectivist philosophers, arrogating to themselves the tutorship of the human mind—perhaps because their minds are of a different nature from those of other men—gravely assure us, if not in so many words, in effect at least, that although the mind believes it has the notion of something altogether different from itself when it thinks of mountain, trees, animals, &c., real or possible, this belief is in reality only a delusion; for the mind never conceives anything but its own modifications and functions.

Now, to these gentlemen I would reply, that even supposing for the sake of argument that the mind is thus deceived, it is at any rate unconscious of the delusion, it does not know that it is thinking of itself, precisely because it believes itself to be thinking of some other thing.

In other words, the mind is unconscious of thinking about itself, whilst it is distinctly conscious of thinking about other things. Now the question is, how can the mind be conscious of thinking a thing which it does not think at all? Would it be possible, for instance, for one of these philosophers to be conscious of thinking about the devil, without at the same time having the slightest notion of him? Or could he, being persuaded of the real existence of the fiend, affirm that existence, and yet make no affirmation whatever? Assuredly not. It is clear, therefore, that when our philosopher is conscious of thinking about Satan, Satan is really the object of his thought, and an object altogether different from his own mind itself. But if, as the subjectivist theory implies, this manner of conceiving is merely a delusion, and the thought of the devil, as of everything else, is after all only a particular form of the knowledge of one's self, what will the consequence be? This, that should our philosopher strive to persuade himself that that theory is true, he would, if he succeeded, have the sorry satisfaction of feeling convinced that he is himself the devil, or, in the formula of one section of the subjectivist school, that the devil is only "a modification or function of his own soul!"

The truth of the matter is, that the pretended argument of the Subjectivists, which confounds the objects of the intelligence with the intelligence itself, is a ridiculous paralogism, a wild sophism whereby these philosophers try to impugn the most manifest facts of nature, to destroy the conscience of mankind, and by a vain show of reasoning to annihilate the authority of reason, and the depositions of the intellective consciousness, which is the basis upon which reason rests in all its pronouncements. And yet this error is the perpetual labyrinth of philosophy; and it fills me with astonishment to think that I have not met with a single writer anterior to 1827, who in dealing with this subject has altogether escaped the meshes of a sophism whose flimsiness nevertheless seems to me so transparent. Now, although I have already called attention to this point

on previous occasions,* I cannot refrain from doing the same again here, because it grieves me deeply to find that SUBJECTIVISM (which is entirely rooted in the above sophism) is still rampant EVERYWHERE, even in our own Italy, and resulting in numberless mischievous and monstrous errors which deform and disgrace philosophy, and which an inexorable logic has in our time carried out even to their remotest consequences.

130. The latest of these errors, the ripest fruit of subjectivism, as I have elsewhere observed, is the deification of the human soul, anthropolatry, psychological pantheism. Let us attempt here a brief historical sketch of this monstrosity, the opprobrium of science, or rather of ignorance, ignorance as proud even as that of Lucifer. Let us trace out the steps by which it has gradually descended into this den of demons, where it now lies, a prey to self-inflicted torment.

The original and primitive error, from which all the others have sprung, I have already indicated. It consisted in the abuse of the words *internal* and *external*, *inside* and *outside*, transported from bodies to the soul; hence the formula accepted as an axiom: "The soul can know nothing outside itself." Let us see how this error went on growing from bad to worse until it poisoned philosophy altogether, so that this science can never be restored to a healthy state until it has completely cast off from itself the deadly poison which is corroding its vitals.

I.—BERKELEY.

131. Berkeley had said that all we know of bodies is reduced to sensations, and that sensations are purely modifications of our soul. Hence his conclusion that bodies are in fact nothing but modifications of the soul itself: *Æsthetic Idealism*.—The errors of this mode of reasoning are:

1° *Sensism*, an error which abolishes thought.—In truth,

* *Anthropology*, 242-244.

if thought is conceded, namely, if it is admitted that bodies are perceived by the mind as beings distinct from us, whatever the nature of sensation may be, it will always remain true that the concept of what all the world expresses by the term *body* is altogether different from the concept of what it expresses by the phrase *modification of one's own soul*; and therefore the confusion of these two concepts is an absurdity;

2° *An imperfect and incomplete doctrine on the corporeal feeling.*—This also is clear. The sensistic theory of Locke, to which Berkeley adhered, takes cognizance only of acquired sensations by which extra-subjective bodies are perceived; and it ignores the fundamental feeling by which the subjective body is perceived. Moreover, in that theory, no distinction is made between the sentient principle, which is simple, and the term felt by it, which is extended, and hence nothing can be known of that *duality* which is essential to all corporeal feeling. Had Berkeley been aware of this duality, he would never have defined sensations as mere modifications of our soul. He would, on the contrary, have recognised that in every corporeal feeling, in every sensation, there is, acting in a given way in the soul, a substance different from the soul itself. Failing to see this necessary distinction, he sank the term in the principle, saying that the first was only a modification of the second.

II.—HUME.

132. Having, as a believer in the sensism of Locke, persuaded himself that *ideas* were in reality reduced to sensations and subjective affections, and, on the other hand, having assumed that sensations were mere modifications of the soul, Hume concluded that *ideas* also, as well as the principles of reason which are contained in ideas, were simply modifications of the soul, and therefore had no force to prove the existence of anything outside the soul, the existence of bodies, of God, &c.—*Rational Idealism.*

The errors that generated this system were the same as those before mentioned; but a new consequence was deduced from them. Berkeley, it must be confessed, in stopping at the denial of the real existence of bodies, and at the same time admitting the existence of God and of spirits, was inconsistent. Now Hume's greater consistency in error necessitated his denial of another truth, viz., "of the difference and opposition which exists between the objects of the mind and the mind which contemplates them." He had to shut his eyes to this most patent truth of fact that "when the mind thinks of a possible object, for example, of a tower which might be built, it thinks, not of itself nor of any modification of itself, but of a thing whose nature is different from and opposed to its own nature as well as to the nature of its own modifications, whilst at the same time this thing is not nothing, because nothingness is not a possible tower."

III.—REID.

133. Reid, dismayed at consequences so absurd and disastrous, resolved to return to common sense by fully recognising that when men conceive bodies, or ideas and the principles of reason, they do not believe that they think of themselves or of modifications of themselves, as indeed they do not. But not knowing how to meet with a direct answer the paralogism which served as a basis to these errors, viz., that "the soul could not go outside itself, and therefore could think of nothing but itself, and what takes place within itself," he, instead of untying the knot, cut it by saying that "the soul truly perceived and conceived things different from itself, but did so by virtue of certain primitive and instinctive laws intrinsic to its nature."—*Realistic Subjectivism.*

This doctrine admitted the fact attested by the common sense of men, that the soul thinks of things different from itself, but did not remove the main difficulty; indeed, instead of replying to the fundamental sophism of the

school which Reid professed to combat, it confirmed it. In fact,

1° The subjective and instinctive laws of which the doctrine spoke were introduced arbitrarily, without any proof;

2° Inasmuch as those laws and those instincts by which it was pretended that human nature was moved to think external things were different from reason, it followed that they were blind and hence incapable of affording a rational demonstration of their veracity and of their authority for witnessing to the existence of things different from the soul. Consequently, their testimony might very well be illusory, nay, it was bound to be so, because man, by the very fact of believing it, was withdrawn from the guidance of reason, and left entirely at the mercy of a guide which was declared not to be reason;

3° Lastly, if man conceived things different from himself merely by the force of instinctive laws intrinsic to his nature, those things could only be regarded as the productions of human nature. The objects of thought, therefore, emanated from man; nor was there any means by which he could make himself certain that they were offered to his perception from without.

IV.—KANT.

134. It was by these reflections that Kant was led to the formation of his system. He accepted the subjective laws and instincts of Reid, and retained the doctrines of Berkeley and of Hume, explaining the latter by means of the former. He took it as a thing past questioning that the soul could not go outside itself, and therefore could not know any thing save in itself. But being, on the other hand, unable to deny that all men are intimately persuaded that they know things different from themselves, he explained this persuasion by saying that it was a necessary effect of the subjective laws indicated by Reid, so, however, that these laws had no force to prove that things different

from the soul really existed. Hence, in his view, all that philosophy now required in order to attain that perfection toward which it had been advancing, was to determine what were these subjective laws, by deducing them from an accurate enumeration and analysis of the objects which men came to admit through them. Thus originated the doctrine of the Kantian forms, schemata and antinomies. —*Critical Philosophy (Rational Idealism systematized).*

The errors of this philosophy are the same as those of the school that preceded it. Only that Kant, instead of refuting them, with an ability far above the common, elaborated them into a regular system; so that in his hands they acquired increased gravity through being presented as a compact whole, in which each part had a special place assigned to it on a skilfully devised plan.

He only added, that although it was impossible for the human mind to demonstrate the existence of any beings different from itself, yet this did not preclude the possibility of such beings existing. They could not, therefore, be either affirmed or denied.

V.—REINHOLD.

135. As Reid had attempted in Scotland to rescue philosophy from the fatal consequences of the systems of Berkeley and of Hume, without being able to dissipate the sophism on which these systems rested, so Reinhold made a like futile attempt in Germany in respect of the horrible consequences of the Critical Philosophy. Like Reid, he began by imprudently granting the fatal premises on which that philosophy was built. Then he argued more or less as follows: "It is certain that the thinking subject *represents* the objects to himself. He has, therefore, the faculty of this representation. Now, by examining the nature of this faculty we find that it involves three things: 1° The representing subject; 2° The object represented; 3° The representation itself. Our consciousness assures us of all this. Since, then, the representation

undoubtedly exists, the object represented and the representing subject must likewise exist as conditions of it."—*Representative System*.

But it was easy to reply: "If the proposition upon which you base your whole argument is true, all these three distinctions are purely phenomenal, produced by the laws which the thinking subject obeys in his action."—Indeed Reinhold himself acknowledged he had made a mistake, inasmuch as his argument could have no force except by presupposing the truth of the object represented, in other words, presupposing the very thing he had to prove. Hence, despairing of getting out of the difficulty by means of reason, he gave up reason in the hope of finding a better guide in the *faith* which was proposed in Jacobi's system, and which resembled that of the school of Reid.

Reinhold's system, therefore, sprang from the same errors that we have mentioned before, the only difference between him and his predecessors being that he took one of these errors as the basis of his system.

It consisted in supposing that our mind perceives objects by way of *representation* only, understood in the sense of *picture*. If this were the case, subjectivism and scepticism would be inevitable; because no representation can of itself make us know the objects unless we know that it represents them and represents them faithfully. Now we cannot know this except by comparing the representation with the objects represented; but in order to make this comparison, we must know the objects, whereas, the question is, to explain how we come to know them. And the same difficulty would arise in the case of objects of which we might happen to be assured by some infallible testimony; for we could not believe in their existence except by presupposing the existence of an infallible testimony different from ourselves, whereas, the question is, to explain how it is possible for us to know that anything different from ourselves exists.

The truth is, that the objects, whether they be ideal or

real (felt), are immediately present to the mind, because being is the proper and immediate term of the intellectual soul.*

VI.—FICHTE.

136. Reinhold's attempt having proved as unsuccessful as had been that of Reid, subjectivism went on unimpeded in its fatal course. Fichte, while still firmly retaining as the expression of an unquestionable truth the original and primitive sophism that the soul can know nothing beyond itself, peremptorily rejected the possibility, which Kant had allowed, of the existence of beings distinct from the soul. In fact, Kant had been illogical in this; for, if all that man conceives is the product of subjective forms, nothing is possible save what can be conceived by man; since the human intelligence extends in a certain way to every thing, to the finite no less than to the infinite. On this basis, therefore, Fichte constructed a perfectly consistent system of Subjectivism.

To facilitate the understanding of what I have now to say on this philosopher, I will briefly summarise here all that had been done in regard to the present question up to the time when he took it in hand.

Thinkers had begun to inquire as to how man comes to know things different from himself. Philosophy had inherited from of old a very specious prejudice, the prejudice that man knows those things by means of representation. The Rationalistic Idealists had shown that this was impossible, and had, therefore, concluded that man in reality knew nothing that was different from himself. But if man knew nothing that was different from himself, it followed that he could not admit that anything of the kind existed. Reid had replied that this was an absurd paradox, inasmuch as it stood in direct contradiction to the universal testimony of mankind. Kant sided with Reid, though in a way which, I confess, seems to me something like a

* It may, indeed, be said that the idea *represents* the real thing; not, however, in the sense that it is a true representation, but in the sense that it is the *intelligibility* of the real thing.

mockery; for he said, that while, on the one hand, the existence of beings different from our soul could not be denied, it was, on the other, impossible for them to be anything else than productions of the soul itself. Thus the cognitive instincts of Reid were transmuted by him into productive instincts; and although Reinhold did his best to combat the doctrines set forth in the *Critique of Pure Reason*, his efforts were valueless except as tokens of a good will. It now only remained to distinguish, classify and describe the *summary objects* which the spirit, with that portentous activity which was attributed to it (always gratuitously, of course), produced to itself; and this task was undertaken by Fichte.

Kant had described and anatomized the *power* which (he said) the spirit had of producing objects to itself; Fichte considered the *act* of this power, and the objects already produced by it. The *Ego* which Kant had posited as the *bond* of union for all the representations, and which Reinhold had made synonymous with *consciousness*, became for Fichte the *primal act* (*actus primus*) of all the knowable as well as of all things. This was an immense step made by subjectivism toward its ultimate development. By this step the abyss to which such a system would necessarily lead its adherents was already disclosed to view. For if the *Ego* is the primal act of all the knowable and of all things, then man is the Creator, he is God. And yet this step to which subjectivism was driven by Fichte's dauntless logic was inevitable, after what had previously taken place. Let us see how this German thinker set his new-fangled Creator to the great work of the production of the knowable and of the universe.

137. He started by affirming that the *Ego posits itself*; this was the first of all acts. Now, if the proposition, "The *Ego* posits itself," were taken simply as indicating the first immanent act of the *Ego*, the act by which the *Ego* is, it might be allowed to pass; because a thing, in so far as it does the act by which it is, may in a certain sense be

said to posit itself; for the passing from non-existence to existence may be regarded as a kind of way through which the thing comes to be constituted in its nature. Of course, this way is traversed without succession of time, by a single act, but yet an act in which we can mentally distinguish several grades *ab imperfecto ad perfectum*, as, indeed, the transition from non-existence to existence used to be conceived by the Schoolmen. It is not, however, in this sense that Fichte wished his *dictum* to be understood. He would have it that the *Ego* posited itself by pronouncing the proposition, "I am Myself;" and this mode of explaining how the *Ego* posits itself involved a manifest absurdity, for two reasons:

1° It is quite evident that as soon as ever the intelligent principle has pronounced the monosyllable *I*, it exists, so that there is no need of adding: *am Myself*. Hence the proposition, "I am Myself," would posit an *Ego* which is already posited. That proposition expresses not the act by which the *Ego* exists, but the act by which the *Ego* turns its reflection on itself.

As a consequence of this first error, it comes to pass that in all systems of this kind, *consciousness*, which is merely the work of reflection, figures as always accompanying the *Ego*; which is evidently untrue, because we have not always the actual consciousness of ourselves.

2° I have said that the intelligent principle must necessarily be in existence from the instant that it has pronounced the monosyllable *I*. But this is not enough. I ask: Could the *Ego* pronounce itself, that is, perform an act, if it was not already in existence? No one performs an act before he exists. Consequently, the mere pronouncing *I* presupposes the existence of him who pronounces it.

Clearly, then, the *Ego* does not posit itself in the sense meant by Fichte.

138. The reason why this philosopher fell into such absurdities in the very first word of his philosophy was because he took the *Ego* already formed as we find it in

adults, and *analyzed* its concept, but forgot that this concept was an elaboration of reflection, and contained not merely a human soul [in its primitive state], but a human soul that had passed into a state of development in which it had arrived at self-consciousness. He forgot, that previously to reaching this stage of its life the soul had existence, and was essentially a rational principle and individual, as I have shown in the *Psychology* (61-81). This reminds us of the fact, that one of the most difficult things for those who take to philosophizing, is to seize with a vigilant eye on that state of man which precedes self-consciousness; and yet it is only by carefully observing this state that a genuine notion can be formed of what human nature really is; because self-consciousness is not natural to man, but acquired.

139. Such, then, according to Fichte, is the way in which the *Ego* posits the first of its primary objects, namely, *its own self*. The truth, on the contrary, is that by the act of pronouncing "I am Myself," the *Ego* does not posit itself, but only expresses a reflex knowledge of itself. Therefore its existence is not dependent upon this act; the soul must exist before it can become an object of cognition.—Let us now come to the second summary object, the *Non-Ego*.

The *Ego*, says Fichte, produces this by a second act, by which it says: "I am not that which is not Myself." Well, but what does this proposition mean? It means that the *Ego* distinguishes itself from all which is not itself; nothing more. But the making a distinction is a cognitive, not a productive, act. There is nothing brought into existence by it. Indeed, how could the *Ego* and the *Non-Ego* be known as distinct if they did not exist? Cognition presupposes the existence (possible or real) of the thing cognized. Yet such is the force of prejudice that our philosopher cannot see this most evident truth, and hence takes it for granted that knowing and distinguishing are synonymous with producing.

The second summary object, then, which, according to

the supposition of this philosopher, is produced by the *Ego*, consists of all that is different from the *Ego*, and is not inappropriately comprised under the negative word *Non-Ego*.

140. The third object, he tells us, is produced by a third act of the same *Ego*, by a pronouncement to the effect that both "the *Ego* and the *Non-Ego* are in the *Ego* itself."

If it were true that the *Ego* is nothing but the product of the act by which the *Ego* is known, and if it were true that the *Non-Ego* is likewise nothing but the product of the act by which the *Non-Ego* is known, then, indeed, it would be true that the *Ego* and the *Non-Ego* (reduced as they are to two cognitive acts) are in the *Ego*.

But if it is true, as it most certainly is, that no one can pronounce himself existent unless he exist before, independently of such pronouncement; and if it is likewise true, that the *Non-Ego* cannot be known or pronounced existent unless it exist before in a similar way; then it is also evidently true that the *Ego* and the *Non-Ego* are not in the *Ego*. In the *Ego* there are only the *acts* by which these beings are perceived, acts which are merely accidents of it; and there are also in the *Ego* the *concepts* of those beings, not, however, as accidents of it, but distinct from it by nature, as its *objects*.

Thus is there in Fichte a continual recurrence of the confusion between the knowledge of things and their existence, always the ancient error of Parmenides: τὸ γὰρ αὐτὸ νοεῖν ἐστὶ τε καὶ εἶναι.

Perhaps it will be said: "Things do not exist for you if you have no knowledge of them."—This is true, but, given that I know a thing, I then also know that that thing exists independently of the act by which I know it; for, the concept of *knowing* necessarily involves the concept of a knowable entity logically anterior to that act. Hence I cannot know a thing except on the condition of knowing also that it exists independently of my knowing it. To say that I know a thing which exists only in virtue of the act by which I know it, and therefore posteriorly (in

the logical order) to this act, would be a contradiction in terms. Either we must deny the principle of contradiction, and that of identity on which the system of Fichte is based, or we must confess that in man the act of knowing is logically preceded by the existence of the knowable thing, and that, therefore, human cognition and existence are things distinct in such a manner that without this distinction cognition would be impossible.

141. But that we may see more clearly how many paralogisms this system involves, I will beg leave to recall the attention of the reader to a concession which I have just made. I have conceded, that if the *Ego* and the *Non-Ego* were nothing but cognitive acts and known concepts, they could be found together in the *Ego*, as Fichte pretends. But I have conceded this *ad abundandum*: to speak with strict propriety, I ought not to have conceded it. I wish to observe, then, that in the formula by which Fichte expresses the production of the third summary object, the word *Ego* is taken in two altogether different meanings. It will, of course, be seen that in the first part of that formula the *Ego*, as well as the *Non-Ego*, stands as the thing contained, whilst, in the second part, the *Ego* stands as the container. Now it is clear, that in Fichte's system the *Ego* taken as the thing contained means a "concept produced;" whereas, taken as container, it has the meaning which all men attach to the word, namely, of a real being, an intelligence, in which the concepts are. Without this, the formula would not have any sense. For, even if the container *Ego* were taken to mean the mere concept of the *Ego*, it would be absurd to think that in the concept of the *Ego* the concept of the *Ego* is contained; because these concepts are not two distinct things, but one and the same. And it would be still more absurd to think that in the concept of the *Ego* the concept of the *Non-Ego* is contained, since these concepts exclude each other by their very enunciation. Hence our philosopher mixes up and confounds the *Ego* produced by him through speculation with the real *Ego*, in which alone the know-

ledge of one's own self resides. On the other hand, the admission of a real *Ego* anterior to the conceptual and reflex *Ego* is the destruction of the system which he endeavours to establish, and by which he proposes to reduce everything to ideas or concepts.

It is, therefore, because of this confusion of meanings attributed to the word *Ego*, that Fichte concludes that the *Ego* makes equation with the *Non-Ego*, inasmuch as both are equally contained in the *Ego*, and are, therefore, rooted and merged in the primal act itself of the *Ego*.

142. Thus our philosopher's summary objects of the knowable and of the universe are three: 1° The *Ego* that posits or produces itself; 2° The *Ego* that posits or produces the *Non-Ego*; 3° The *Ego* that equates itself with the *Non-Ego*.

But, 1°, in these three objects the value of the word *Ego* is continually changed, as we have said, because the *Ego* that produces cannot be the *Ego* that is produced, since producer and produced give two opposite concepts. Again, the *Ego* in which the *Ego* and the *Non-Ego* are equated cannot be the same *Ego* which constitutes one of the terms of the equation, because that which contains the two terms cannot be one of those terms.

143. 2° To say that the *Ego* produces the *Non-Ego* is the same as to say that it produces that which is not the *Ego*. Consequently, the *Ego* either goes with its activity outside itself, or without going outside itself produces an entity different from itself. This is self-evident; for the *Ego* and the *Non-Ego* are two opposites, and they cannot be declared to be an identical thing without going against the principle of contradiction, which precludes the possibility of yes and no signifying the same thing. If, on the other hand, the *Ego* produces an entity different from its own, then it is admitted that the *Ego* can with its acts go outside itself, can create something different from and opposed to itself, whatever that something may be;* and

* To render the fallacy more seductive, the world and all things different from the *Ego* were expressed under the negative form of *Non-Ego*, and it was

hence the famous sophism on which the whole system of transcendental idealism is based falls to the ground.

144. 3° No true equation between the *Ego* and the *Non-Ego* will ever be possible until the meaning of these words is changed ; because two contraries, one of which excludes the other, never can make equation so long as they are both taken in the same sense. Comparison there may be, not equation. Fichte, therefore, abuses the word *equation*. The way in which he explains how the pretended equation takes place proves this clearly. It takes place, he says, "by the *Ego* opposing to the divisible *Ego* a *Non-Ego* likewise divisible." Now it is obvious, that to set one thing in opposition to another is not to make an equation, but to deny it.—He subjoins that that equation contains these two propositions: 1° "The *Ego* posits the *Non-Ego* as limited by the *Ego* ; 2° The *Ego* posits itself as limited by the *Non-Ego*." But surely in these propositions no case of equation is made out ; for to limit is not the same as to equate. Besides, the *Ego* that limits is not taken in the same sense as the *Ego* that is limited, and the divisible *Ego* is not taken in the same sense as the undivided *Ego*. Our philosopher is, therefore, simply playing with the different reflections which the intelligent principle makes upon itself, and upon the things different from itself. Instead of considering, as he ought, each reflection as a different act of this principle, he will have it that each reflection produces a different *Ego* which stands to the preceding *Ego* in the relations of limiting and limited, container and contained, producer and produced. It is, indeed, a miserable play upon words, worthy of the ancient Greek Sophists, yet inevitable so long as one insists on starting from the erroneous assumption that the intelligent being has no existence previously to his becoming conscious of himself, but is himself the pro-

pretended that the *Ego* conceives the world by denying its own self. But in the concept of the world there is quite as much of positive as there is in that of the *Ego*, nor can the world be perceived by merely denying the *Ego*, but

an affirmation is necessary for that purpose. Now, this affirmation is forgotten in the system of transcendental idealism, and for a very good reason, which is that in this system the affirmation would be inexplicable.

duct of the very act whereby he acquires self-consciousness. This act being capable of repetition according to the number of the reflections, the identical intelligent being must likewise be repeated, and so admit of being taken, now for the same *Ego*, and now for different ones, according to the requirements of the purpose for which the parallogism was had recourse to.

145. 4° Moreover, this system is wholly devoid of sufficient reason. It can give no answer to the following queries :

(a) Why does the *Ego* posit itself rather than not? What is it that moves it to posit itself? and to posit itself at one time rather than at another? For certainly each man's consciousness did begin at a certain time. What is the reason that *Egos* are posited in a certain number rather than in another? For it is plain that the number of *Egos* is finite, and could be increased, and is in fact increased daily by the advent of new human beings into the world. Or else you will have to maintain that there exists no *Ego* but your own (which indeed would be consistent with your principle which excludes the admission of anything outside the *Ego*); and then your philosophy would be written for your own benefit alone.

(b) What is it that induces the *Ego* to posit the *Non-Ego* rather than to abstain from doing so? The word *Non-Ego* expresses the world and all things that are different from the *Ego* merely in a negative way; it says that they are not Ourselves, but it does not say *what* they are. Now, not every one of us posits (to continue the same mode of expression) the same kind of *Non-Ego*. For some individuals the world and the things different from themselves contain more than they do for others; hence the *Non-Ego* posited by the former is different from that posited by the latter. What sufficient reason do you assign for this difference? In other words, why should an *Ego* posit a *Non-Ego* determined in one mode rather than in another?

(c) Again, why should the *Ego* wish to limit itself by producing the *Non-Ego*? Or, why should it wish to divide

itself into two, the *Ego* and the *Non-Ego*, as you say it does? What sufficient reason do you assign for this?

In Fichte's system no sufficient reason is or can be given for any of the acts which it is pretended are performed by the *Ego*. And if there were a sufficient reason determining the *Ego* to all those acts, clearly that reason would have to be different from and superior to the *Ego*, to which it would be imposed; and so it would destroy the system, which wholly consists in abolishing everything which lies outside the *Ego*. It is, therefore, a system devoid of reason, a system of blind chance. Instead of explaining knowledge, it assumes that the world exists and operates without cause. Thus intelligence is suppressed, and nothing remains but the most capricious, the most absurd fatalism.

146. It follows, that in this system all the first principles of reasoning are violated and destroyed, and, as a consequence, knowledge, which rests entirely on these principles, is destroyed and rendered impossible. And yet, strange to say, our philosopher [by the fact of having recourse to reasoning] invokes the aid of these very principles in composing the system which completely violates and abolishes them. Let us see:

(a) The principle of cognition says: "Being is the object of the cognitive act;" and this system says: "The cognitive act produces being," which is a principle altogether opposed to the first, and, moreover, proceeds on the absurd supposition that knowledge precedes existence.

(b) The principle of contradiction says: "Between affirming and denying, equation is impossible;" and this system says: "The *Ego*, which is an affirmation, and the *Non-Ego*, which is a negation, make together an equation.

147. In truth, the contradictions in this system are more numerous than the words which express it. I will confine myself to pointing out one which is new: "The *Ego* posits the *Non-Ego*." Now what is the *Non-Ego*? All that is not the *Ego*, namely, the world and God. But in the world

there are other *Egos* besides your own.* Now, according to you, each of these *Egos* posits itself. But, inasmuch as each of them, in respect of your *Ego*, is *Non-Ego*, it follows that each of them is posited twice. Nay, every *Ego* is posited as many times as there are *Egos* in existence, because each *Ego* posits itself and posits all the others, comprised in the *Non-Ego*. Now, either by the words "Positing the *Ego* and positing the *Non-Ego*," you mean merely *knowing*, and in this case your system vanishes into nothing, because it supposes the object to exist before the cognitive act which posits it; or you mean *causing to exist*, and in this case the *Egos* are multiplied *ad infinitum*, because every *Ego*, by positing all the *Egos* that exist, causes them to exist; and so the number of existing *Egos* is multiplied by itself; and this number of *Egos* raised to the second power is, for the same reason, again multiplied in the same way; so that in your system the increase of *Egos* would have to be expressed by an infinite series, which, if we put down the primitive number of *Egos* as $=x$, might be expressed thus: $x, x^2, x^3, x^4, x^5, x^6$ &c., and so on without end. And as in this series the last term would never be reached, so the number of existing *Egos* could never be assigned; nay, it would be impossible for a single *Ego* ever to come into existence, because the first of the *Egos* implies the entire series!

This is a patent mathematical demonstration that in Fichte's system all existence and all knowledge becomes impossible and absurd. Our philosopher will perhaps say, that his own *Ego* is the only one that exists, and that he wrote his philosophy for his own use alone, like a spider who makes his web where there are no flies. But in this case he would, first of all, be condemned to posit a *Non-Ego* wholly inanimate, a universe inhabited by himself alone, and hence to live for ever among brute beings. Then he would have to explain to himself why it was that his *Ego*

* That in the world there are many *Egos* has been expressly admitted by Fichte's successors, Schelling and Hegel; for these philosophers hold that that which has no consciousness (inanimate nature) gradually comes to have it, and so to constitute itself into an *Ego*.

could not produce some other *Ego*, comprised in the *Non-Ego*, as he most probably would feel desirous of doing, in order to emerge at last from his barren solitude and be prolific of another being like himself! At the same time, how very careful ought he to be of his own conservation, lest the whole world should perish with him! In the second place, it being indubitable that his *Ego* posits, in the *Non-Ego*, many other *Egos* different from itself, it would be necessary that his *positing* should no longer signify producing a real being, but producing illusions; and in this case he himself would be an illusion, because he is *posited* by himself. But, if all were illusion, there would no longer be any illusion, because the word *illusion* has a meaning relative to *reality*; and in any case there would be as much truth in the *Egos* which he posits in the *Non-Ego*, as there is in himself, posited in the same way.

148. (c) The principle of substance also is destroyed; for, as in this system the reflex knowing, which is an accident of the human understanding, is made to be the same as being, it follows that the distinction between substance and accident is altogether abolished: the accident is made to subsist by itself.

(d) So likewise the principle of causation is abolished; for no cause can operate without a sufficient reason, and we have seen that in this system the *Ego* operates without a reason sufficient to determine and explain its act.

149. (e) Lastly, the ruling principle of the action of being says: "Every being by its natural acts tends to preserve, increase and perfect itself." Hence, contrariwise, "No being limits itself, no being divides itself," &c.; but to explain these passions of the being recourse must be had to a cause external to its natural activity. Now the *Ego* proposed by Fichte, the only being that exists, limits and divides itself, opposes an obstacle to itself, and then seeks to vanquish and overcome it. The ontological principle of the action of being is, therefore, violated; and all this without any cause being assigned, save a dogmatic *ipse dixit* of our philosopher.

150. But if all the logical and ontological principles of reasoning are taken away, a man has no longer any right to argue, he must hold his tongue; he has no right to think, he must vegetate; because it would be impossible for him to either speak or think without first rehabilitating the very principles which he has dishabilitated and destroyed. Our philosopher, therefore, says more than logic permits him to say, when he expresses the result of his system in these words which annihilate it: "There is nothing existent either in me or outside of me; there is only a continual variation. There is no being. The images alone exist. I myself am one of these images, nay, I am not even this, I am only a confused image of images. Every reality is turned into a marvellous DREAM, and thought is THE DREAM OF THAT DREAM." Be it so; but you cannot say even this without falling into a new contradiction.*

151. The system of Subjectivism developed in this way made its first appearance in the East, and the Indian philosophers who professed it arrived at the same conclusion as Fichte. There is a sect of Buddhists who admit nothing but the interior sentiment, its eternal existence, the existence of the intelligent *Manas* who has the *consciousness* of things; and they maintain that all the rest is void, that is to say, *nil*, and that there is no possibility of proving by reason that anything exists. They admit nothing but the *Ego*, from which they make the *Non-Ego* to proceed as a mere illusion. A Buddhist philosopher says: "There is nothing really existent. The *Fo*" (namely, the wise men who have succeeded in reducing all things to so many vain products of the mind) "do not distinguish the worlds from their own mind. All that is in the worlds is nothing but the mind of *Fo*; in other words, there is nothing else than *Fo*" (the intellective nature).† In an Indian philosophic work we read: "All

* See also, on Fichte, the *New Essay on the Origin of Ideas*, 1388-1395.—TRANSLATORS.

† I take this from Deshauterayes, in the *Journal Asiatique de Paris*, T. VII.

He also relates that Tamo, a famous Buddhist, in reply to an Indian king who asked him what *Fo* was, said: "*Fo* is nothing but perfect knowledge, or the intelligent nature."

beings being contained in the most pure substance of thought, an idea arises of a sudden and produces the false light. When the false light has arisen, the void" (the *Ego* distinguished from the primitive *Ego*) "and obscurity" (the *Non-Ego*) "limit each other."* Lastly, all things are declared to be dreams of *Fö*, that is, of the intelligence.

VII.—SCHELLING.

152. Like the preceding thinkers, Schelling retained the error which confounds ideas, and in general the objects of the human spirit, with the spirit itself. And seeing that these objects are infinite, because on the side of its object the spirit is not limited, he undertook to unify them by reducing them to one sole infinite. As a necessary result of his confounding the spirit with this its infinite object, and therefore with all the determinate objects comprised in it, the spirit remained identified therewith. Thus did he land in the system of *Absolute Identity*. He was apparently much impressed by Fichte's dictum, "The *Ego* and the *Non-Ego* make Equation;" and the system of *Absolute Identity* may with truth be said to be merely a development and a completion of this proposition of his predecessor.

153. If, however, we consider the thread of the whole argument, we shall soon see its inevitable inconsistency.

The reason why the knowing spirit was confounded with the objects known by it lay in the prejudice of which we have spoken, viz., that "the spirit can know nothing outside itself"—a prejudice which, from the time it found admittance into the German Philosophy, has remained in it with a tenacity greater than that with which the tape-worm resists expulsion from the human body. This philosophy has never been able to rid itself of it.

Now Fichte, far from consistently adhering to this erroneous principle, which he had taken as the foundation of his reasonings, departed from it, unawares; for it is im-

* See Abel Rémusat, *Mélanges posthumes*, p. 122.

possible to continue long with logical consistency in an argument based on an error. The cause of his inconsistency was this: He had confounded the soul with the *Ego*; and since the *Ego* is a soul which is conscious of and affirms itself, he had made the soul to consist in this very self-consciousness and affirmation. This is why he invented that absurd and self-contradictory formula, "The *Ego* posits itself."

But the *Ego* knows not only itself, but many other things besides; and to explain this fact Fichte had added that "The *Ego* posits also the *Non-Ego*."

But, inasmuch as he had taken it as a fixed principle that "The *Ego* can know nothing outside itself," he concluded that "The *Ego* and the *Non-Ego* make equation," thus reducing the *Non-Ego* to the *Ego*.

This, however, was an absurd and evidently self-contradictory conclusion; for the *Non-Ego* is the negation of the *Ego*, and, therefore, whatever it may consist in, it never can be the same as the *Ego*. Neither can it be a modification of the *Ego*; for the *Ego*, being the consciousness of *self*, could not but be conscious of its own modifications if the *Non-Ego* consisted of such. On the contrary, the *Ego* is conscious that the *Non-Ego* is a negation of the *self*, a something opposed to it, and by being opposed to it, limiting it—limiting it precisely in the sense of making it aware, that not all that exists is included in it, but there is something different from it. Whatever, therefore, the *Non-Ego* may be, and from whatever source it may derive its existence, it certainly is not the *Ego*, nor a modification of the *Ego*, and hence does not make equation with it, and to say that it does is an absurdity. From this, therefore, Fichte ought to have perceived that the principle that "The *Ego* can know nothing outside itself" was false, because every principle which leads to absurdity is false.

Neither is Fichte better able to escape from the absurdity by saying that the *Non-Ego* is nothing but an appearance, and that in reality it is the *Ego* itself. For,

in the first place, this ought to be proved by some solid argument, and not merely asserted. In the second place, even granting that the *Non-Ego* is only an appearance, it always remains true that this appearance is not the *Ego*, and cannot, as such, be reduced to the *Ego*. In the third place, if it is admitted that appearance is different from substance, then the question arises as to whether the *Ego* itself be appearance, or substance. The *Ego* is self-consciousness, and it is self-consciousness that certifies that the *Non-Ego* is not the *Ego*. The same testimony which makes the *Ego* known, makes known the *Non-Ego* also. If what consciousness attests is an appearance, then the *Ego* is an appearance no less than the *Non-Ego*. Indeed, this is what Fichte himself confesses in the end; nor could he do otherwise, since it is the same *Ego* that posits both itself and the *Non-Ego*. If, therefore, there is question of two appearances, there is no longer any room for distinguishing in the *Non-Ego* the substance from the appearance, nor hence of affirming that the *Non-Ego* makes equation with the *Ego* in respect of the substance, and is different from the *Ego* in respect of the appearance. Consequently, they are either two substances or two appearances; and in either case the *Non-Ego* is opposed to, and never identifiable with, the *Ego* itself.

Well, but may not the *Non-Ego* also have consciousness?—I at once answer, no; in Fichte's system this is not admissible. The *Non-Ego* is opposed to the *Ego*, and for Fichte *Ego* means *Consciousness*. To say *Non-Ego*, therefore, is the same as to say *Non-Consciousness*. Therefore Fichte's principle "that the soul, which is essentially consciousness, that is, *Ego*, is the *Non-Ego* itself," falls to the ground. Therefore there is something which is not consciousness. But the foundation of the system consisted entirely in reducing every thing to consciousness; therefore the upshot of the matter is, that this system merely by being developed destroys the foundation on which it rests.

154. Schelling, without having the least suspicion that

the introducing of something which was not consciousness destroyed the foundation of this philosophy, admitted both the *Ego* and the *Non-Ego*, and relied on his being able to find a movement which would have the effect of changing Non-Consciousness into Consciousness, and Consciousness into Non-Consciousness. For this purpose he had to imagine (I say "to imagine," for it is all a matter of imagination) a third principle, which could become at one time conscious and at another time unconscious. Now it is clear that by this assumption, as gratuitous as the preceding ones, he was taking leave altogether of the reasonings by which Fichte had arrived at his theory of the *Ego* and the *Non-Ego*, and that he was embracing a system by starting from a supposition which totally annihilated it.

Schelling, then, accepted Fichte's conclusion that "The *Ego* produces the *Non-Ego*," viz., the Conscious (the soul) produces the Unconscious (Nature); and this implied his sanction of the principles on which Fichte had based this conclusion. But he also added of his own the proposition "The *Non-Ego* produces the *Ego*," on the ground that the *Non-Ego* (Nature) longs to attain the consciousness of itself; and by this addition he destroyed and denied all the principles by the use of which Fichte's proposition had been reached. The inconsistency, therefore, and the intimate self-contradiction could not be more glaring.

To the doctrine developed out of the first proposition Schelling gave the name of *Transcendental Idealism*, and to that developed out of the second proposition he gave the name of *Philosophy of Nature*. The first doctrine rests on the principle that "The *Ego* knows nothing beyond itself," whence it follows that all that is known must be reduced to the *Ego*; the second rests on the opposite principle, contradictory to the first, namely, that "Something is known and exists which is not the *Ego*, but tends incessantly to become such," and hence that the principle first laid down is false. The disagreement and strife between these two parts of the system of this philosopher could not be more deadly.

155. Schelling, therefore, recognises that *consciousness* is not essential to being, but may either belong to it or not; and I will freely grant that he is right here. But, in this case, the reasoning by which it was maintained that the *Ego* after positing itself posited also a *Non-Ego* making equation with it, is deprived of its foundation, and, consequently, the basis of the system of *Absolute Identity* vanishes.

If, on his own admission, it is not absurd to suppose that there exists something outside of consciousness, how will he be able to identify this with its opposite, viz., with what is within the realm of consciousness? Having, on the one hand, rendered it impossible to have recourse to the specious reason that "All must be contained in consciousness," and, on the other, being bent on identifying the Conscious with the Non-Conscious, he will be compelled to have recourse to a series of assertions resting on air, destitute of all proof.

156. Accordingly, having drawn, first, the Non-Conscious from the Conscious, as Fichte drew the *Non-Ego* from the *Ego*, and then the Conscious from the Non-Conscious, which Fichte did not do, and which would in fact be repugnant to Fichte's doctrine, how does Schelling explain brute nature, the nature devoid of sensation and intelligence?—By regarding it as the act of a supreme *Ego*, an act of which that *Ego* is totally unconscious. How does he explain sensation, which he acknowledges to be devoid of consciousness?—By deriving it likewise from the supreme *Ego*, which, he says, in the act of feeling loses self-consciousness. How does he explain the *Æsthetic Beautiful*?—Again, by deriving it from the supreme *Ego*, which, in the artist, losing the consciousness of itself, retains only the consciousness of the æsthetic works produced and individuated. And what sufficient reason does he assign of this loss or limitation of the consciousness of the *Ego*?—None whatever. Neither does he give us any information as to how it is that this consciousness is at one time obscured and at another illuminated. Again,

how does he prove that these acts or products (for he confounds the acts with their products), although non-conscious, must proceed from the *Ego*, which is consciousness itself?—By no other reason than that alleged by Fichte, "That it is impossible for the *Ego* to know anything outside itself." His argument, or rather paralogism, comes in substance to the following enthymeme: "The *Ego* can know nothing outside itself; *ergo*, that which the *Ego* understands must be produced by the *Ego* itself;" as if to *understand* a thing within one's self were the same as to *produce* a thing different from one's self! Indeed, if it were true that the *Ego* can understand nothing save within itself, the right conclusion would have to be that it cannot produce anything outside itself, because, as I have just said, our philosopher takes producing and understanding as synonymous. But let the paralogism pass.

So far we have a *Non-Ego* produced by the *Ego*, a Non-Conscious produced by the Conscious. Schelling, in continuation of what had been done in this direction by his predecessor, goes on to say: "This *Non-Ego* has a conation to acquire the consciousness of itself, because it is produced by the *Ego*, and, therefore, has the *Ego* latent within its bosom." Now what proof does he offer in support of so grave an assertion?—None. What sufficient reason determines the *Non-Ego* to constitute itself into an *Ego*?—None. What reason determines the times in which the *Non-Ego* is devoid of consciousness, and those in which it acquires consciousness?—None. Let this also pass; but there still remains to ask, whether it be possible for the *Ego* to be latent; whether a latent *Ego* be not a contradiction in terms, since it is equivalent to a consciousness without consciousness. A consciousness which is not consciousness is NOTHINGNESS. Here we already see the origin of Hegel's NULLISM. But it is even less than nothingness; for it is a contradiction, an absurdity; and nothingness is not an absurdity. Hence, again, we see that Hegel's NULLISM must of necessity have led him to ABSURDISM (a word quite as good as the system it ex-

presses), namely, to maintaining that knowledge is founded on contradiction, which is the principle of that philosophy.

157. The reduction, therefore, of that which is essentially conscious (*Ego*) and that which is non-conscious (*Non-Ego*), to one sole principle which sometimes acquires consciousness and sometimes loses it, is an impossibility. In the first place, all these endless transmutations of the conscious into the non-conscious, and *vice versâ*, are, as we have just said, without any sufficient reason. In the second place, either the single principle can lose the consciousness of itself, and, in this case, not being conscious by its very essence, it is not infinite, because wanting in the greatest of attributes; or the single principle cannot lose the consciousness of itself, but of its acts and products only, and, in this case, there returns the duality which it is vainly pretended to reduce to unity and to absolute identity. This system may, therefore, seem marvellous as the offspring of a confused imagination which darkens the mental vision, but can never be considered a production of reason guided by sober philosophic thought.

158. The philosophy of Schelling, then, consists of two parts. The first is the system of Fichte, who draws the *Non-Ego* from the *Ego*; the second, peculiar to Schelling, is the *Non-Ego* tending to acquire consciousness, and, thus regain the nature of *Ego*. We have examined the psychological principles on which the first part is founded, and have found them of no force. The second part rests on ontological principles, and these we found in direct opposition to the preceding ones.

Now, as regards the ontological principles, which are exclusively Schelling's own, it is necessary to dwell on them a few moments longer. They are taken from the Alexandrian Platonists, and may all be reduced to the confusion of the *idea* (object) with the *intelligent subject*; but Schelling's exposition of them has something original in it. We may see this in his dialogue entitled *Giordano Bruno*, where he undertakes first of all to prove that the

producer of artistic works is an *eternal notion*, thus confounding the *exemplar* cause of these works with the *efficient* cause. I will quote a small portion of it :

Anselm.—What do you consider to be the producer of these works ?

Alexander.—It is difficult to say.

Ans.—Tell me, is each of these works necessarily finite ?

Alex.—Obviously.

Ans.—But we have said that the finite is perfect when it is conjoined with the infinite ?

Alex.—So we have.

Ans.—By what means do you suppose that the finite can be conjoined with the infinite ?

Alex.—It is manifest that it could only be conjoined by something in respect of which the finite was previously one with the infinite.

Ans.—Therefore only by means of the Eternal Himself ?

Alex.—This also is clear.

Ans.—Must we, then, say that a work which represents the highest beauty can be produced only by the Eternal ?

Alex.—So it seems.

Ans.—Do you mean the Eternal considered absolutely, or the Eternal in so far as he is immediately related to the individual producer ?

Alex.—The latter.

Ans.—But through what medium think you that the Eternal is related to the individual producer ?

Alex.—I am hardly prepared to answer this.

Ans.—Did we not say that all things are in God by means of their eternal notions only ?

Alex.—Yes, we did.

Ans.—It follows from this, that the Eternal is related to all things by means of their eternal notions, and, therefore, is related to the individual producer by means of the eternal notion of such individual, which notion, in God, is identified with the soul precisely as the soul is identified with the body.

Alex.—We will, then, consider that eternal notion of

the individual as the producer of a work in which the highest beauty is represented."

This is how Schelling pretends to have proved that the NOTION OF THE INDIVIDUAL is the real PRODUCER of æsthetic works. Having come thus far, he goes on to say that the *notion of the individual* is eternal, nay, is the *Eternal Himself*; whence he draws the conclusion that the Eternal Himself is the producer of those works. But a little further on, speaking of this same eternal notion of the individual, which is the producer, he, with a palpable inconsistency (indeed, consistency is a thing he never seems to remember), calls it, not the Eternal Himself, but only an emanation from the Eternal, having a similitude with Him from Whom it emanates. Then, immediately after this, and without thinking it at all necessary to offer the least proof, he asserts that God "gives to the notions of the things which are in Him an independent life of their own, inasmuch as He permits them to exist as souls animating the several bodies." And hence he infers that "every work produced by the eternal notion of the individual has a double life, namely, an independent life in itself, and another life in the producer."

Thus does our philosopher think he has demonstrated, 1° That souls are the divine notions in so far as God *permits* them to exist as souls animating individual bodies; 2° That they are identified with God even as they are identified with their bodies; 3° That these notions, changed by Him into souls, are what produces the æsthetic works; 4° That these æsthetic works have *life*, nay, a double life, the one in themselves, and the other in the producer.

159. To any one possessed, I will not say of a high degree of intellectual penetration, but of the least *modicum* of logical sense, it must be a matter of astonishment to think that propositions of this nature should be put forth with so much levity as though they did not require a most rigorous demonstration. Yet such is the character of the German philosophy, about which so much noise is made. Setting this clamour aside—and, indeed, a lover of

philosophic truth should never let himself be imposed upon by noisy applause of this kind—I have no hesitation in affirming, 1° That it is quite clear that there is in German minds a great tendency to deductive and consequential reasoning; but, 2° That at the same time they are unskilled in this art, owing to their being particularly weak in logic. And the reason is, that German civilization, being of recent date, and formed of ready materials and in a hurry, has not as yet had time sufficiently to exercise itself in Dialectics. The philosophers of that nation are, in the first place, deficient in *analysis*, and hence they easily confounded ideas with one another. In the second place, they are deficient in *demonstration*, and hence they content themselves with advancing proposition upon proposition, one more astounding than the other, without ever stopping to weigh seriously the value of the proofs. In confirmation of the truth of what I say, I beg leave to make some observations on the passage just quoted from Schelling.

160. 1° It is there said that the finite is perfect when it is conjoined with the Infinite, and that it cannot be conjoined with the Infinite unless the finite be previously *one* with it. But who does not see, that if the finite is *previously* one with the Infinite, it no longer needs to be conjoined with it? That which is one with another thing is already conjoined, or rather identified therewith. Why, then, the word *previously*? It has no sense in this connection.

2° The expression to be *one with the Infinite* is ambiguous, and should, therefore, be made clear by an analytical distinction of the different meanings in which it can be used; a thing, however, which our philosopher forgets to do. If *one* is taken to mean *identified*, then it is not true that the finite is *conjoined* with the Infinite; for, in speaking of an identical thing, we do not say “this thing conjoined with itself,” but we say “this thing itself;” nor is a medium required to conjoin a thing with itself.

3° Having laid it down that the finite cannot be conjoined with the Infinite save by means of the Infinite and

Eternal Himself, our philosopher concludes from it that a work which represents the highest beauty cannot be produced save by the Eternal. Now this consequence contains more than the premises; for the premises consisted of these two things only, 1° a finite work, 2° the conjunction of this work with the Infinite, effected by the Infinite Himself. The conclusion, therefore, ought to have been, not that the Infinite produces the work itself, but that the Infinite contributes to produce the work which represents the highest beauty, merely in so far as He conjoins the finite work with Himself.

4° Again, seeing that the *conjunction* which is supposed to exist between the finite work in question and the Infinite might be of different kinds, it was necessary, in order to prevent obscurity and ambiguity, to make an analytical distinction of these kinds, and to state precisely which of them was meant here. But this also was forgotten.

5° After this, Schelling goes on to say that the work which represents the highest beauty is produced by the Eternal, not considered absolutely, but considered in so far as He is immediately related to the individual producer. But I ask: If the producer is the Eternal Himself, how is it that an individual producer different from the Eternal comes into the field, an individual producer whom the Eternal is only related to? This is contradiction.

6° Then he undertakes to explain in what the relation between the Eternal and the individual producer consists; and in doing so he sets out from the principle that "All things are in God by means of their eternal notions only." This, however, is a false principle, because things are in God, not merely as their *exemplar* cause, but also as their *efficient* cause. Why, then, should we accept, without any proof whatever, a proposition opposed to the teaching of theologians and philosophers generally?

7° From the erroneous principle that "All things are in God by means of their eternal notions only," he draws

the conclusion that "God is related to the individual producer by means of the eternal notion of that individual." But God is related to the individual producer not only by means of the eternal notion of such individual, but also because He realizes by His omnipotence the essence of the individual contained in that notion, and so causes him to exist, creates him.

8° He adds, as though it were a thing which came as a matter of course, and which no one could either deny, or reasonably demand a proof of, these words: "which notion is, in God, identified with the soul precisely as the soul is identified with the body." The common sense of mankind, on the contrary, will always distinguish, both in God and in the human mind, 1° The notion of the individual from the soul, and 2° The soul from the body. The difference between the notion of the individual, and the soul, is infinite; for the first is eternal, the second contingent. Consequently the two are not identified. The difference between the soul and the body is that which exists between two substances; but two substances, one of which stands as term to the other, cannot be identified, although they may be united and form together one sole individual. Our philosopher, therefore, is at fault not only in regard to logic, of which he seems to make no account, but also in regard to the common sense of men, to which he wantonly and gratuitously bids defiance.

9° Having so rashly asserted that the notion of the individual producer is identified with the soul, and that the soul is identified with the body, he concludes by saying that this notion—which is also identified with the Eternal—is itself the "producer of the work which represents the highest beauty." Thus, after professing to draw a distinction between 1° the finite and the infinite, 2° the notion of the producer and the producer himself, he confounds all these things together, without in the least explaining under what aspect they differ, and under what aspect they are identified; how their separation and their identification come about; what sufficient reason there is for

these transformations ; how and in what sense many things can be said to be one without involving the absurdity which the expression seems to involve. On none of these points does our philosopher consider himself to be under any obligation of saying a single word.

10° If he had said that "the notion of the æsthetic work, its eternal type," is the producer, the proposition might in some way have been allowed to pass, because in this case it would only have remained to explain in what sense the "notion," the "type," was said to produce the work, namely, in the sense of *exemplar cause*. But no, his wondering disciples are asked to believe, on his word, something far more strange. The producer, he declares, is not the notion or type of the *work*, but the notion of the *individual maker* of the work. Now, if the notion of the individual maker is the producer, clearly that notion will not be able to produce anything else than the individual whom it represents ; in other words, it will not be able to produce anything but itself ! Thus we have one absurdity piled upon another. And since that notion is the soul, it follows that the soul (if it were a producing notion) would only be able to produce itself ! I leave the reader to judge whether anything is explained by this mode of philosophizing.

11° As to God's eternal notions being souls, this is a direct consequence of the premises of our philosopher. The truth, however, is that the notions or ideas are indeed intued by intellectual souls ; but it is simply absurd to say that they are the intuing souls themselves, since between intuer and intued there is an essential and insuperable difference.

12° Again, you would suppose with all the Schools, that the eternal notions were always in God. But our philosopher declares that they emanate from God. He declares it, and yet he says that they are eternal, without at the same time saying that it is on this account that they issue forth from God. Of all these assertions he gives you

not a title of proof. *Ipse dixit*, and you must blindly rest content with that.

13° Neither must you suppose that God's Eternal notions are souls by their own essence; they are souls purely because God *permits* them to exist as souls animating the several bodies. As to how these notions can have a desire to be souls; how this can be permitted to them by God; how, having obtained the divine permission, they can acquire existence as souls; these are all matters for the conception and explanation of which our philosopher leaves us entirely to our own discretion, never thinking for a moment that it is his duty to try to enlighten us.

14° Lastly, what will be the work of this producer, which is at one time the Eternal, at another the notion of the individual, at another the individual, and at another the soul?—It will be something living, nay, living of a double life, the one in itself, the other in its producer, with which it is thus identified. What is life? How is it possible to live of two lives? How can a finite æsthetic work produced by an individual be a living thing? How is it identified with its producer? Here are other enigmas whereby our philosopher is pleased to exercise the faith of his disciples.

Such is a fair sample of the logic constantly exhibited by the line of German philosophers, which began with Kant and ended with Hegel, to whom I must now invite the attention of the reader.*

VIII.—HEGEL.

161. The German thinkers started in their speculations from the *Ego* without, however, analyzing it; for, as I have observed (159), the art of analysis is almost unknown to them. By submitting the *Ego* to analysis, we find that it results from three elements: 1° A [substantial] funda-

* See also, on Schelling, the *New Essay on the Origin of Ideas*, 1396-1407.—TRANSLATORS.

mental feeling [the soul], 2° An intuition of the object [ideal being], 3° One or more reflections which that intelligent feeling makes upon itself, and in consequence of which it affirms itself by saying "I," "Myself." The *Ego*, therefore, involves the work of reflection and the consciousness which the soul has of itself. These philosophers based their systems on one or another of these three elements, without embracing them all, and without so much as distinguishing them. Fichte, giving his attention to the third element much more than to the other two, attributed to the *Ego* the nature of reflection, and thus made it essentially conscious. Schelling, on the other hand, fixed his thought on the first element, and imagined the *Ego* as consisting of a feeling which was sometimes conscious, sometimes unconscious, forgetting that a mere feeling is never an *Ego*; for to the *Ego* consciousness is essential, and consciousness belongs to intelligence. Hegel, neglecting, like his predecessors, the analysis of the *Ego*, confined his attention to the second element, and his primitive *Ego* was neither feeling, nor reflection or consciousness, but that which stands between these two extremes, namely, simple *cognition*. But as analysis was ever absent, he, like his predecessors, confounded the knowing subject with the object known, and concluded that the latter was identical with the former. Moreover, he recognised that the object of cognition is of two kinds: *subsistent* or *real*, and *ideal*. As a necessary outcome of these premises, the Idea was all at once the knowing subject, the ideal object intued, and the real object perceived. Thus did this philosopher reduce all categories of things to the Idea alone.

And the Idea thus become all things was necessarily God, the *All-God*.

162. This certainly was not much of an advance on the philosophy of his predecessors; for they had, in substance, arrived at the same conclusion. They had not, however, professedly set themselves to show how the *Ego* transformed itself into all things, and produced all the an-

tinomies that can be conceived by the human mind. This task was undertaken by Hegel.*

Hegel's *Ego*, then, being the Idea, he occupied himself with describing how the Idea transformed itself into the various categories of things; so, however, as never to go beyond mere assertion.

He asserted, therefore, that Reason or the Idea (for, be it remembered, the confusion of the subject who intues the idea and makes use of it, and the idea intued and made use of, runs through his whole system) has in its being three different moments: 1° That in which it is *in* and *per se* Idea (pure logical idea); 2° That in which it transforms itself (Nature, the *Non-Ego* of Fichte); 3° That in which, from being transformed, it returns into itself (spirit, soul). Hence his division of philosophy into three branches: *Logic, Philosophy of Nature, Philosophy of the Spirit*.

163. To begin with the second of the moments in which the Hegelian Idea finds itself, how does the Idea transform itself into Nature? This is what our philosopher omits to explain; but the mere supposition of such a transformation involves absurdity upon absurdity.

1° The word *Idea* expresses nothing but the object intued by the intelligent spirit, the essence of things. For example, in the idea of man we see the essence of man, that is to say, not this or that real man, but the type of man, man in the state of pure possibility. The same must be said of every other idea. Now, if we attribute to the Idea any action whatever in such wise as to make it an agent, we bring into it an element foreign to its nature. We have no longer the idea of the thing pure and simple, but we have an agent associated with that idea by our imagination. Ideas have no other office than to serve us as the MEANS OF KNOWING things. *Action* belongs solely to real and subsistent beings. The *manifesting types* of real things, and *acting* real things, give two concepts

* On the generation and nature of the *Ego*, see *Anthropology*, 804-811.—TRANSLATORS.

which are categorically different. The former can be present to our mind without the latter, as, for example, when we think of a thing merely possible, and not realized. To pretend, therefore, that an Idea *acts* and transforms itself into what is not itself, is to change the nature of that idea; it is an abuse of the word idea; it is to substitute for the *idea* a *real and subsistent nature* capable of acting; it is to fall back into the very duality which Hegel wanted to abolish.*

164. 2° All *Ideas* without exception are immutable and eternal. The least degree of internal observation is enough to convince us of this.† Therefore, in the Idea there can be neither passion nor transformation.

165. 3° If the Idea could transform itself into Nature, it would annihilate itself, by losing that which is its essential constitutive and consists in its being "light to the mind." Now, no being can annihilate itself. And even if it were to do so, it could not, after being once

* Schelling caught a glimpse of this contradiction, as may be seen from the following passage: "This philosophy had, in the *subject-object*, a principle of necessary development. But if the pure rational—I mean that which has no other attribute than the *impossibility of not being conceived*—is pure subject, then this subject, which by the fact of triumphing, as I have said, over all objectivity, merely elevates itself to a more exalted subjectivity, this subject, I say, so determined, is no longer simply that for which it is *impossible not to be conceived*. This determination, which the subject had not originally, is an empirical determination which this philosophy was obliged to admit, either because the living reality had made its way into it as a force, or else from the necessity of securing a means of unfolding itself, and constructing the external world" (Schelling's *Estimate of the Philosophy of Professor Cousin*).—This criticism is just, but the philosopher who makes it shows that he himself is not entirely healed of the philosophical leprosy which he detects in others. For, 1° he does not recognise the absurdity of a subject producing its own object; 2° he endorses the proposition that the sub-

ject triumphs over its own object by causing it to re-enter into its own self, the producer, which is another absurdity; 3° the attribute which he assigns to the "pure rational," namely, the *impossibility of its not being conceived*, belongs solely to the *idea*, and the *idea* does not receive the appellation of *rational* save in so far as it is intued by an intelligent subject; hence the "pure rational" is never the pure *idea*, and therefore is not that to which the said attribute, exclusively proper to *ideas*, belongs; 4° the *idea* is not a *subject*, it is a most simple *object*, and nothing else; neither is it capable of development, or of change; the development belongs entirely to the subject who intues the *idea*, and of whom it cannot certainly be said that it is *impossible for him not to be conceived*; 5° lastly, every development and the manner in which it takes place must have, not only its matter, but also its *sufficient reason*, of which, however, nothing is said in the philosophical system of which we are speaking, so that its admission is wholly gratuitous.

† See *Restoration of Philosophy, &c.*, L. III, chaps. xxxix-liii.

annihilated, create itself anew and become another nature ; for nothingness cannot become anything.

166. Let us now consider the Idea in the third of the moments assigned to it by Hegel.

4° In this moment the Idea returns from the state of brute Nature to itself, and thus the Spirit comes into play. But I observe, that such return would necessarily suppose that brute Nature was the Idea which had not annihilated itself, but had retained enough of its identity to enable it still to act. Now, as I have just said (3°), this supposition is absolutely inadmissible. Therefore, even assuming that the Idea had ceased to be Idea, and had become brute Nature, it would be impossible for the latter to return to the state of Idea, for the same reason, namely, that this transition would require it first to annihilate itself, and therefore to be reduced to a condition in which it could no longer become anything.

5° I have said that the transformations in question can neither be explained nor conceived unless there remain something identical forming the subject of them all. Now, Hegel does not give us the least indication of this something which remains unchanged in these supposed transformations.

6° The *Idea* is perfectly simple ; it cannot, therefore, have two elements, the one mutable and the other immutable ; therefore it cannot be the subject of any transformation. Immutability is essential to it (n. 2°).

7° How is it conceivable that brute Nature could return to the state of Idea ? or that, in returning to be Idea, it could become Spirit ? These are mysteries for which our philosopher assigns no sufficient reason, in fact, no ground on which we might be justified in conceiving the thing as possible.

8° The Idea can never become Spirit, because the Spirit is that which intues, and the Idea is that which is intued—two things directly opposed to each other. Neither is it possible to have recourse to a third term capable of uniting in itself these two opposites, *intuing*

Spirit and *Idea*, because in that case we should be setting out, not from the *Idea*, which is the sole foundation of Hegel's whole system, but from something superior to the *Idea*. The *Idea* would be merely one of the two opposite terms. Besides, the difficulties of explaining how this superior term unfolds and transforms itself would be just the same as before, and the main difficulty would only be put back one step, not removed.

Inasmuch, therefore, as our philosopher completely ignores these immense difficulties and proceeds uniformly by way of gratuitous assertion, it is quite clear that his whole doctrine may justly be described as consisting merely of a fancied historical description of the transformations by which the *Idea* becomes all things the most opposed to one another, and even nothingness itself; so that, on his own showing, his *Idea*, instead of being immutable, never remains in the same state.

167. It is useless to say that these Hegelian transformations are nothing but mental operations. For there always remains the erroneous basis laid down by Fichte, that "the knowing subject knows nothing outside himself," so that all that he knows must necessarily consist of things born within him. All realities are, therefore, mere products of the mind and, as Fichte himself confessed, appearances, dreams, and dreams of dreams (150) (as if a dream could dream!).

Taking it, then, for granted that his transforming virtue consists in *thought*, Hegel begins by declaring that thought is able to conceive being in so abstract a form as to remove from it, first, all determinations, and then its very self, which will thus be equal to *nil*. Hence he concludes that being, in its most abstract form, makes equation with nothingness, and so he calls it *being non-being*. But,

1° It is not true that being can be abstracted from being. Abstraction does not reach so far. The most it can do is to remove from being its determinations, leaving indeterminate being as the result. The removal of in-

determinate being itself is, not an act of abstraction, but an absolute negation by which the object of thought is abolished, and if the object is abolished, thought is, of course, abolished with it. Moreover, as the negation of being results in nothingness, so likewise it leaves no being with which nothingness can make equation ;

2° Again, if the abstractions and the negations here spoken of are operations performed by thought, it is evident that thought itself and its operations are different from the being thought of. Thought, therefore, which in Hegel's philosophy means the thinker, can no more be confounded with that being, than that which is essentially object can be confounded with the thinking subject. Consequently, in the negation of being there still remains the being who denies, although unknown to himself ;

3° If the object thought of is not the thinker, it follows that a thinker always thinks a thing different from himself ; and so the principle that "the human spirit can think nothing outside itself" is untrue.

168. On the other hand, thought itself, to which Hegel appeals in support of his doctrine, deposes,

1° That, although it is able to abstract, to deny, to pass from one object to another, it never can transform the objects themselves one into the other ;

2° That, besides the objects proper to thought, that is to say, ideas, there are entities which are not ideas, but feelings and forces acting in feeling, and in which pure thought has no power whatever to produce transmutations.

If, therefore, the depositions of thought are to be believed, we must conclude that thought has none of that transforming virtue which our philosopher attributes to it.

169. And even if thought had such virtue, some sufficient reason ought to be assigned in explanation of why it sometimes uses this virtue and sometimes not, or why it uses it sometimes in one way and sometimes in another. Indeed, it would seem that Hegel, unlike in this respect to his predecessors and masters, felt in some way the need of offering the reason I refer to. For this end he said that

the supreme principle of philosophy consisted in *becoming*, and that it was in this act [of becoming] that nothingness and being met, as it were, in one common boundary line. For, assuming that the first principle [of a science] does not require to be explained, he thought he was thus freeing himself from the obligation of giving any reason in justification of his *becoming*. In this, however, he was mistaken. It is, indeed, true that there is no obligation of accounting for first principles when they are self-evident; but his *becoming* is certainly not self-evident, especially when we consider that it is subject to modes, laws and times for the determination of which some adequate reason ought undoubtedly to be produced. There is yet more. Hegel's *becoming* is itself an absurdity, inasmuch as it supposes that something *becomes* without a cause. For as it is not absurd to say, that a being which had no existence begins to exist given a cause which creates it, so it is most absurd to say that a being begins to exist by itself without any antecedent cause either efficient or material, as it is also most absurd to say that a being annihilates itself. And if an antecedent cause exists, then the principle of Ontology is, not the *becoming*, as Hegel asserts, but the First Cause, which accounts for the *becoming* itself, and renders it conceivable by the mind, and to which, therefore, he should have directed our attention as being the sufficient reason of all the acts subsequent to the *becoming* as well as of their circumstances.*

170. Nevertheless, it cannot be denied, that after the first error had been committed, all the others were in some way deductions following inevitably one from the other. Indeed, the series of the erroneous propositions may be thus expressed :

* It is also strange to find that a philosopher who claims to have constituted Philosophy *à priori* should not have perceived that the concept of *becoming* is phenomenal; for, as Count Mamiani has well observed : "In *becoming* there is a series of states, in each of which one thing absolutely exists, and another thing absolutely

does not exist, but will absolutely exist in the state next following" (*Preface to the Giordano Bruno of Schelling*). From this it clearly follows that there is no one point in which being and nothingness are identified; or, if there is such point, it is an abstraction which supposes a mind that makes it, and some other thing on which it is made.

1° Thought can know nothing outside itself (Fundamental Error, Transcendental Idealism, Subjectivism);

2° Therefore, outside of thought nothing exists;

3° Therefore, whatever is believed to exist outside of thought is only a product of thought itself, which creates the *Non-Ego* by denying itself;

4° Therefore, ideas also are products of thought;

5° But thought, after it has produced the real world and ideas as things different from itself, on reflecting that it can know nothing outside itself, discovers that these things are in reality nothing but its very self;

6° Moreover, thought can abstract and deny, and, in this way, annihilate what it has created;

7° It can also abstract from and not think of itself, in which case it will itself be annihilated.* Therefore, thought (which embraces the All in its bosom) sometimes exists and sometimes not. Thus being and nothingness are identified.

8° Now, inasmuch as the lowest grade in which thought can be found consists of this self-annihilation, and from this nothingness it can rise to all the other grades, it follows, that from the *Great Nothing*, as from a certain dark abyss, all things issue forth.—System of *Nullism*.

9° Thought, therefore, has two extreme terms: *nothingness*, and the highest *grade of its activity*. Philosophy cannot explain things save by conjoining these two terms. It must, therefore, stop at the point in which nothingness becomes being; and this is the *becoming* of which Hegel speaks.

10° But the greatest activity to which thought can rise is that in which it acquires the consciousness of itself. *Conscious thought*, therefore, as the ultimate development of being, is what these psychological Pantheists call God. "God," says Hegel, "is not God, but because He knows Himself."

* For the very reason that thought can lose the consciousness of itself, or, as these philosophers say, can annihilate itself, they ought to have seen the absurdity of the whole system. For if thought were the All, and at the same

time could annihilate itself, either there would not remain any cause to bring it back to existence, or, if some cause remained, this would be something different from thought, and so duality would again appear on the scene.

Here, then, is a series of absurdities proceeding with a certain logical connection from the first absurdity. To enumerate the products, physical, moral, social, &c., of thought, and to consider them all as identified with thought, is the purpose of most of the works of Hegel.

171. I must here repeat what I said before in reference to Schelling. Hegel's philosophy is merely the reproduction of the Indian philosophy, especially of some of the Buddhist schools. "We have seen," says a recent writer, "how Brahminism from a natural propensity had a great tendency to a species of Nullism, or at least to the annihilation of all individual existences, and to a complete Scepticism, which at bottom is equivalent to absolute Nullism. But Buddha seems to have separated himself from the Brahmins in this, that for the theory of salvation through unification with and absorption into Brahma, the Only Being, he substituted the theory of salvation through the annihilation of all individualities, and their complete absorption into absolute *void*. Void or Nothingness took the place of Brahma's Only Substance. Such, from the ontological point of view, is the fundamental difference between Brahminism and Buddhism."* The principle of these Indian systems is wholly psychological, the very same which is expressed in the first of the ten propositions I have just enumerated.

The two following theses are found in some *Sutras* quoted by Burnouf:

"Every phenomenon is without a substance proper to itself and true: all is a CONCEPT OF OUR SPIRIT."

"This All which is conceived is destined to perish."†

172. I need not say that this is an impious system; but the impiety which it contains has been proclaimed by none so openly as by the disciples of Hegel. "The very idea of God," say they, "has no reality whatever, because it

* *Cours sur l'Histoire de la Philosophie*, par l'Abbé Bourgeat, in the *Université Catholique*, Vol. XXI, p. 325.

† *Introduction à l'Histoire du Bouddhisme Indien*, Vol. I, p. 472.

does not reflect upon itself;* hence Theology must necessarily be lost in ANTHROPOLATRY, and Religion vanish in Speculation." The deification of man, adoration paid to him as to the only God: behold what these deluded ravers are driving at: behold the ultimate outcome of Subjectivism: let our religious Italian Subjectivists think well on this matter.†

* The idea of God does not reflect upon itself? But if ideas are identified with thought, even as nature is identified with it, and if the products of thought, including those which deny thought, can attain to consciousness, why cannot the idea of God do the same?

† Cælius Rhodiginus thinks that the *possible intellect* (πᾶσιτις νοῦς) of the Peripatetics corresponds with the *Reason* of the Platonists: "Sciendum vero obiter, quam in anima Platonici *rationem* dicunt, Peripateticos vocare *intellectum possibilem*: quam vero illi *mentem* dicunt, hos *intellectum agentem* nominare" (*Lect. Antig.*, L. III, c. i). In the *Restoration of Philosophy*, &c., L. III, c. xlv, I have said that the *Reason* of Plato corresponds to the

Acting Intellect (πᾶσιτις νοῦς). But it is well to keep in mind this other passage of Rhodiginus: "Sunt qui apud Theophrastum, Iamblico et Plutarcho auctoribus, intellectum possibilem esse nobis duplicem interpretantur: quorum alter et idem primus SEMPER IN ACTU dum semetipsum intelligit, sequentia sub se cuncta cognoscit" (here we see the Aristotelian subjectivism). "Alter secundus transiens de potentia in actum est ratio" (*Ibid.*). But, according to Aristotle, the intellect which is always in act is the acting intellect, which draws the possible intellect into act. The acting intellect is that which (in the order of cognitions) *does* everything; the possible intellect is that which *becomes* everything.

CHAPTER VI.

FIFTH CLASS OF ERRONEOUS SYSTEMS :—THOSE WHICH PLACED THE NATURE OF THE SOUL IN THE SUBJECT, BUT ERRED IN DETERMINING THE NATURE OF THE SUBJECT ITSELF.

173. I place in this class the system of Aristotle ; but before proceeding with it I must make several observations.

First of all, is the Aristotelian system altogether free from the error, which I have attributed to Plato, of confounding the soul with ideal being, the subject with the object which illumines it ?

I answer : this system has two aspects : it is transcendental *Idealism* in so far as it retains the divine properties of ideas and attributes them to the soul which it confounds with them ; and it is *Subjectivism* in so far as it retains the properties of the soul and attributes them to ideas which it confounds with it.

The first of these aspects is presented to us in Plato ; the second in Aristotle.

174. Beyond all doubt, Aristotle teaches that "the soul becomes in a certain way all things," and that "the understanding is the things that are understood." I have spoken of this in the *Restoration of Philosophy*, &c., Book III, chap. xxvii.

175. It is, however, one thing to confound the soul with ideas by attributing to it their nature, and quite another thing to confound ideas with the soul by attributing to them its nature, as I believe is done by Aristotle. In this case, although Aristotle places the nature of the soul in the subject, and rightly so, he nevertheless falls into a far

greater error than that of Plato ; for he degrades ideas by dragging them down from heaven to earth. But it will be well worth our while to examine his theory with greater attention.

176. From the peremptory tone in which Aristotle re-proves the opinions of all his predecessors, one would feel inclined to suppose that he had a strong belief in the security of his own position, and in his being in possession of a well defined scientific system. Nevertheless, his works, in the state in which we now find them, make very strongly against his supposition.

During the reign of Scholasticism, when it was considered a kind of philosophic impiety even to suspect that the "Master of them that know" had fallen into self-contradiction, men's minds were not in a fit state to pass a just judgment on the Aristotelian doctrine ; an impartial criticism of his works was impossible. But, as is usual in such cases, the restraint put upon reason by an authority without the requisite credentials provoked a violent reaction, and those to whom the restraint became at last intolerable broke through it rudely, as a man does when he is angry. The unjust yoke of philosophic authority which fetters the mind being thus succeeded by passion which blinds it, a new period began in which men were as little competent to judge equitably of the Aristotelian philosophy as those of the former period had been. Nowadays, when that passion seems to have subsided, and that superstitious acquiescence in every thing that had been said by the *Philosopher* seems to be out of the question, I think it would be very desirable that the learned should at last occupy themselves with making a truly critical exposition of the doctrine contained in the books of Aristotle that have come down to us, an exposition which we do not as yet possess.*

* The Author himself subsequently published the exposition he here speaks of in his *Aristotele esposto ed esaminato*, &c. Alluding to this work, a distinguished Italian Professor, deeply versed in Rosmini's system, writes : "In this

precious volume Rosmini has left us an example of the manner in which the ancient philosophers ought to be studied. Many learned disquisitions have indeed been written on the works of those authors, but they have gene-

177. For my own part, I have no doubt that the injury which those books have suffered, partly from the extraordinary vicissitudes which befel them, and partly from the envious hand of time, are greater than is commonly supposed. As, however, the important question now is, not what Aristotle actually thought (a thing which it would now be impossible to find out), but what is really contained in the books that go at present under his name, I feel seized with something like terror in having to confess that these books present to my eyes scraps of the most contrary doctrines, a tissue, or rather a patchwork, of pieces torn off and strangely appropriated from all the philosophical systems that had been propounded before his time.

I am confirmed in this opinion by finding that Aristotle has been understood by his interpreters in the most discordant ways, and credited with the most opposite views. Some have put him down as a materialist, others as a sensist; while others have not hesitated to affirm that it was quite possible to reconcile him with Plato, and that the difference between him and his master was merely one of words.*

178. Notwithstanding this, I think it may safely be affirmed that the system of Aristotle regarding the nature of the soul is but one of the numerous forms of Subjectivism; and I am led to this opinion by the following considerations:

As I have observed elsewhere (*Psychology*, 223, 224), he defined the soul "the first entelechy of a natural body† which virtually has life" (ψυχὴ ἐστὶν ἐντελέχεια ἡ πρώτη σώματος φυσικοῦ ζῶντος ἐχόντος δυνάμει).‡

Now, although there has been much controversy about rally been wanting in that spirit which aims at diving into the inmost nature of a doctrine, and at grasping the bearings of the consequences virtually contained in it" (See the fortnightly periodical *Il Rosmini*, July 1st, 1887, p. 17).—*Tr.*

* "Philosophiæ forma instituta est Academicorum et Peripateticorum, qui

rebus congruentes, nominibus differant" (Cic. *Acad.* I).

† What is to be understood by *natural body*? Aristotle says that "natural bodies are the principles of the other bodies" (*De Anima*, II, i). Averroës explains: "the principles of artificial bodies."

‡ *De Anima*, II, i.

the value of the word *entelechy*, nevertheless, its origin (from *ἐν* and *τέλος*) sufficiently indicates that it signifies completion, the act which completes, perfection, &c.* Hence there can be no doubt that Aristotle conceived the soul as an act whereby the body is perfected. And he says "a body that has life virtually," which is more than if he had said *potentially*; for a mere potentiality might easily be taken for a simple capacity, or receptivity, or passive power; whereas the Greek word *δυνάμει* expresses more than that, it expresses a productive power, a power that is capable of passing into act, as, for example, is force in regard to motion. Again, by "a body that virtually has life" he means "an organic body that has the power of nourishing itself (*per intus susceptionem*), and hence of growing or of diminishing by a virtue of its own."†

Now, in what does he place this perfection of the body which he calls *soul*?—He places it in a form or species. And how does he define form or species?—By contraposition to matter. Matter, he says, is "a something of which we cannot affirm that it is this or that (determinate) thing." Form or species, on the contrary, is "that in virtue of which we affirm that this or that is a (determinate) thing."‡ According to him, therefore, the soul is that which exists in a body, and causes that body to be a determinate thing, and to be entitled to a name, and, in our case, the name of *animal*. The soul, then, is not an accidental act of the body;|| it is a *specific* act, by reason of which the body receives a new substantive name. Hence he classes the soul among substances; for he distinguishes three kinds of substances: matter, form, and the compound of the two.§ *Substantial form* would, however, be a more correct name for the Aristotelian soul.¶ In fact, speaking of substances composed of form and matter, one does not see how the form considered as form

* Thus motion is the entelechy of that which is mobile, considered in so far as it is mobile: ἡ τοῦ δυνάμει ὄντος ἐντελέχεια ἢ τοιούτου. Aristot., *Physic.*, III, ii.

† *De Anima*, II, i.

‡ *De Anima*, II, i.

|| In *De Anima*, I, Aristotle excludes the opinion that the soul is an accident.

§ *De Anima*, II, i.

¶ *Psychology*, 52.

can stand by itself, separated from the matter. To stand by itself, it should be something beyond mere form; consequently it cannot be a substance standing by itself. Nay, if we consider bodies, from which the words *matter* and *form* were taken, and if we define substance "that which in a being exists by itself"* (a definition which implies that the accidents in that being exist through its substance), we find that, then, the name of substance applies to the matter rather than to the form; because, since the form stands as the act, the matter stands as the *subjectum* of it.†

* This is the same as to say that "the substance is the act by which the essence subsists" (*Psychol.*, 52).

† Aristotle calls the soul a *substance*, but he always adds, "in the way that *species* or *forms* are substances." Thus, in *De Anima*, I, ii, he says: "Ut speciem corporis naturalis vitam habentis." Then a little further on, according to the version of Michael Sophianus, he says that the soul is "a substance consisting in REASON," because it is what constitutes the *reason* (the *concept*) of the animate body, the quiddity of this body, that which is expressed by its definition. Thus, says he, "the iron is not the axe; hence the axe is defined and has the quiddity of axe through its form." He also compares the soul to the image impressed upon wax. "If, then, we must say something which is common to every soul, it will be this, that the soul is the first act of a natural organic body. Hence it is not necessary to inquire whether the soul and the body are one, even as it is not necessary to inquire whether the wax and the figure impressed on it are one, nor in general whether the matter and that of which it is the matter are one. For, one and being (although they are taken in various meanings) are properly the act." Afterwards he says, that if the eye were an animal, the soul would be vision, and that, in this case, vision would be the substance *secundum rationem*; which is the same as to say "the specific essential of the animal, its constitutive difference" (*De Anima*, II). From this it is manifest that he calls the soul a substance, not in the sense of its being

the *subjectum* (for he attributes this to the body), but in the sense of its being the act and perfection of the *subjectum*. We everywhere see the ambiguity created by the uncertain meaning of the Greek word *ousia*, which signifies *essence* as well as *substance*. Ritter, in his *History of Philosophy* (Vol. III), lays particular stress on the fact that Aristotle calls the *form* of things by the name of *substance*. He says: "Il est clair—que pour Aristote la forme indique ce qui est en réalité quelque chose, tandis que la matière doit exprimer la faculté générale d'être quelque chose.—Quiconque connaît la manière de s'exprimer d'Aristote ne sera donc point étonné qu'il finisse par appeler aussi la forme, la substance, ou ce qui est quelque chose, et l'idée d'une chose, parce que l'être est exprimé dans l'idée." Now, if we bear in mind that to the *form* of Aristotle, *idea* in Greek, the equivalent of the Latin *species*, there corresponds the *idea* of Plato, we shall not fail to see, in what Aristotle teaches about *form*, the Platonic doctrine modified. Plato made no distinction between an *idea* and that which is seen in it, namely, the *essence*. The distinction I have laid down between *idea*, *essence*, and *substance*, makes it clear that in the Aristotelian system the soul is the *essence* of the thing named, that is, of the animal, not its *substance*.

The history of Philosophy (and all those that have been attempted up to the present time are, I am sorry to say, anything but faithful histories) ought to note how, from this doctrine of Aristotle, who called the *form* of things by the name of *substance*, there originated a

Hence, in the Aristotelian system, it is impossible to conceive the soul separated from the body, even as it is

school of Realists who maintained that what gives to things their identity is the *matter*, and what constitutes their individual difference, and consequently is the principle of individuation, is the form; while another school placed the individuating principle in the *matter* itself. Peter Abelard, in his book *On the Five Voices of Porphyry*, expounds the opinion of the former school as follows: "Quidam enim ita rem universalem accipiunt, ut in rebus diversis ab invicem per formas, eandem essentialiter substantiam collocent, que singularium, in quibus est, materialis sit essentia, et in se ipsa una, tantum per formas inferiorum sit diversa, quibus quidem formis se separari contingeret. Nulla penitus differentia rerum esset, quæ formarum tantum diversitate, ab invicem sistant, cum sit penitus eadem essentialis materia. Verbi gratia: in singulis hominibus numero differentibus eadem est hominis substantia: qua hic Plato per hæc accidentia fit, ibi Socrates per illa." In fact, Aristotle says that an animate body and an inanimate one are different substances because they have different forms, although the matter be the same in both. The Realistic school, however, whose doctrine Abelard expounds in the above passage, did not consider the matter which exists in many individuals to be a *species*; they considered it to be absolutely one and identical, inasmuch as the matter had no species, and, therefore, no quantity (so at least they ought to have said), the species and the quantity being nothing but form, which they of course multiplied. Now, Abelard finds this opinion already expressed in some passages of Porphyry. Accordingly he continues: "Quibus quidem Porphyrius assentire maxime videtur cum ait: 'Participatione speciei plures homines unus; particularibus autem et singularibus unus et communis, plures.' Et rursus: 'Individua igitur dicuntur huiusmodi: quoniam ex proprietatibus consistit unumquodque eorum, quarum collectio nunquam est eadem in alio.'" And, indeed, in the second of these quotations, Porphyry derives the distinction of individuals from the different aggregate of the properties with which they are endowed, and, therefore, from

the forms. All the philosophers that I am acquainted with, both ancient and modern, fall now and then into this error; and the reason is because none of them has grasped the distinction between the *specific individual* or the *full species*, and the *real individual*; hence they have applied to the latter what is applicable only to the former (See *New Essay on the Origin of Ideas*, 646-659, and 406, 407). For, although it is true that the specific individual (in other words, the possible or ideal individual) varies according to the different aggregate of properties with which it is endowed, nevertheless, an individual of this kind does not contain any matter. The real individual, on the contrary, is individuated by the *different reality*, not by the form, which, indeed, may be the same as that of other individuals (See *Anthropology*, 784-788). As regards the first of the quotations from Porphyry, I have to observe that it contains two parts contradictory to each other. For, while in the first part it is said that many men are one through the species, namely, through the idea, which is the same for all alike (*participatione speciei plures homines, unus*), in the second it is said that the one and the common which is in the singular becomes many (*particularibus autem et singularibus unus et communis, plures*). Thus, the one and the common are placed in the singulars, which is the same as to place in them the *idea*, in respect of which alone there is such a thing as the *common man*. Abelard follows up the exposition of the system of these Realists thus: "Similiter et singulis animalibus specie differentibus unam et eandem essentialiter animalis substantiam ponunt: quæ per diversarum differentiarum susceptionem in diversas species insit. Veluti si ex hac cera modo statuum hominis, modo bovis faciam, diversas eidem penitus essentiae manendi formas aptando." Nor was their belief on this point shaken by the fact that wax can only receive different configurations in succession, whilst the universal or common assumes many forms at the same time; for they attributed this merely to some special property of the universal. Hence Abelard goes on: "Hic tamen refert

impossible to conceive the act separated from the *subjectum* whose act it is.

179. No wonder, then, that Aristotle, when applying his doctrine to the intellective soul, finds himself uncertain and embarrassed. For the philosophers who had preceded him had already demonstrated that the operations of pure intelligence are performed independently of the instrumentality of the corporeal organism. Nor could he deny this, or gainsay the consequence flowing from it, viz., that the soul, in so far as it is intelligent, is not the act of a body, and can, therefore, subsist without a body. Hence, after having said that the soul cannot be separated from the body, as the figure impressed on the wax cannot be separated from the wax, when he comes to speak of the intellect, he seems like a man perplexed as to what he ought to say. Let us hear him: "Now, as regards the intellect and the contemplative faculty, nothing has been defined as yet. It seems, however, that it is another kind of soul, and such as to be separable, even as that which is eternal is separable from that which is corruptible."* The latter part of this passage is noteworthy. Aristotle does not say straightway that the intellect is *separable from the body*. He merely says that it is separable in the same way

adnotare quod, eodem tempore, cetera eadem statuas non constituit, sicut in universali concipitur: quod scilicet universale ita commune Boëtius dicit, ut eodem tempore idem totum sit in diversis, quorum substantiam materialiter constituat: et cum in se sit universale, idem per advenientes formas singulare fit, sine quibus NATURALITER in se subsistit" (which is the same as to say *potentially*, since nature is the principle of generation), "et absque eis nullatenus ACTUALITER permanet. Universale quidem in NATURA: singulare vero ACTU. Et incorporeum quidem et insensibile in simplicitate universitatis suæ INTELLIGITUR: corporeum vero atque sensibile IDEM per accidentia in actu subsistit. Et eadem, teste Boëtio, et subsistunt singularia, et intelliguntur universalia." From these expressions of Porphyry, of Boëtius and others, we may see how true that is

which we have already noticed, viz., that "what philosophers mean in this connection is an *object* such as the mind conceives it, and therefore composed of an entitative part *a parte sui*, and of an ideal element added in the conceiving of it:" hence the error which we constantly find in writers, of attributing to the being considered in itself that which the mind supplies in conceiving it, an error to which are due all the interminable disputes that have been raised in the world about the nature of universals.

For the above extract from Abelard I am indebted to the courtesy of the Abate Strazza, who has taken the trouble of transcribing it for me from the *Codex* of the *Bibliotheca Ambrosiana*.

* *De Anima*, II, ii.—He afterwards places the faculty of *opining*, distinct from the intellective faculty, among those which cannot be separated from the body.

as the eternal is separable from the corruptible. To know his mind, then, it is necessary to find out what he means by *eternal* and by *corruptible*, and in what way, according to him, these two things are separable.

180. If this point is not settled beforehand, he will seem, a few lines lower down, to fall into contradiction with himself. For if the intellect is separable for the reason that it is not the act of a body or of a corporeal organ, it plainly follows that the intellectual soul cannot be the form of a body, since the form or species of the body is defined by Aristotle as the act and perfection of the body itself. And yet, very soon after, he distinctly says that the soul, even in so far as it thinks, is the species or form of the body: "The soul is that by which we, first of all, live, and feel, and think (*διανοούμεθα*); hence, the soul is, unquestionably, a certain intention and species; not, however, as matter and subject."* According to this, then, to be subject and matter is reserved for the body; the intellectual soul is neither of these things; it is only species, form, intention, act, perfection of the body. Nor can there be any doubt as to his speaking here of the intellect; for, in the third book *De Anima*, chap. v, he expressly defines the intellect thus: "I call intellect that by which the soul thinks (*διανοεῖται*) and judges." Again, in the second book of the *Posterior Analytics*, he refers to the cognitive faculties of the imperfect animals (erroneously attributing to them also a kind of knowledge), and then, passing to the perfect animals, viz., to men, he speaks of the intellect. He considers, therefore, the intellectual soul as the form of perfect animals, one degree higher than the soul of the brutes, yet of the same species.

What, then, does Aristotle mean by that which is eternal? and what by saying that the eternal separates itself from the corruptible?

181. In the first place, it must be remembered that he rejects the separated ideas and forms of Plato; that, by consequence, he recognises no other forms than those

* *Ibid.* II, ii.

which are in the particulars; and that, as he does not separate the form from the matter, so he does not separate the matter from that form whose *subjectum* it is. To the particular forms he attributes "being in act," and hence operation and generation; but he denies that they produce forms, or compounds of form and matter, precisely for the reason that form is inseparable from matter. Now, in his system, matter is eternal, and hence must have an eternal form from which all other forms originate. Moreover, according to him, the mind can separate matter from its forms, and thus free them from its incessant vicissitudes. Therefore, the matter abstracted by the mind, as also abstract forms, are incorruptible and eternal in respect of the mind which contemplates them, as he explains in the books of the *Posterior Analytics*. Thus, for him, the eternal consists of matter and form taken in the abstract, which in reality do not exist in the soul, but in external things. But the soul is capable of receiving them from those things; and it is in this way that the mind comes from without, and that it is separable, because it is not innate except potentially.

It is clear from this, that Aristotle confounds the mind or the intellect with the *species* that are obtained from without, which is exactly the error I have alluded to, of confounding the subject with the object. In proof that such is really the case, I will quote some passages from his writings. The first, and a very notable one, is from the second book *On the Generation of Animals* (chap. iii), in which he undertakes to explain the generation which takes place through the union of the sexes. He there distinguishes the potential soul from the soul in act, observing that the soul is not said to be generated and truly to exist if it is not in act. Now, the vegetative, sensitive, and intellective souls come into act successively, and, as it were, in the same way as the tubes of a telescope are drawn out one after another. He says, therefore, that in the *semen* there is a spirit, and that in this there is *nature*, viz., the ethereal vital principle (*proportionē respondens elemento stellarum*),

which is the soul as yet in a potential state. Out of this potential soul there arises, in the act of conception, the vegetative soul, whose nature consists in the virtue which an organic body has of receiving nutriment, and through nutriment (an internal operation) of growing, and then also of decreasing. From this, after some time, there issues forth another act, viz., the sensitive soul, and last of all, when this has reached maturity, the intellective soul. "For, says he, there is in the *semen* what is called caloric, which gives fecundity to it. And this is not fire, nor any virtue similar to fire; it is the *spirit* contained in the *semen* and in the spumous body: and there is *nature*, which resides in that spirit, and which, in respect of its reason, corresponds to the stellar element."* The male *semen*,† then, contains the soul in a potential state, but the *conceptum*, which exists as soon as the female is fecundated, already contains the soul in act, although only the vegetative soul. "No one," says he, again, "will maintain that the *conceptum* is inanimate, wholly destitute of life; for even the *semina* and the *concepta* of animals are in every case instinct with life, and the casual offshoots themselves are sometimes prolific: it is, therefore, manifest that there is in them the vegetative life." Then he subjoins: "It is certain that in process of time the sensitive soul is received, by which the animal is, and then the intellective soul, by which man is." He derives the intellective soul from the seminal body itself, in which the vital caloric is contained, just as he derives from it the sensitive soul and, previously

* *De Generatione Animalium*, L. II, c. iii. In support of this most ancient opinion that the seminal bodies are formed of an ethereal element such as the celestial bodies consist of, Aristotle gives no other proof than the fecundity which the rays of the sun impart to the earth, and which he thinks could not be imparted by any other caloric. "Wherefore," he says, "fire does not generate any animal; neither does it appear that any thing is constituted by the dense, the humid, or the dry. But the caloric of the sun and of animals—and not only that which is contained in

the *semen*, but also, if such there be, that which is contained in other excrements, although different from nature—has in it the VITAL PRINCIPLE." Here we see how true it is that Aristotle followed the philosophers who had preceded him, more than he seems willing to own. We likewise see that he placed the principle of life in a species of caloric, not, however, the caloric of fire, but that of the sun or of the animal excrement; hence his potential soul, which by development becomes successively vegetative, sensitive, intellective.

† *Ibid.*

to this, the vegetative.* For he says: "The animal and the man are not by any means made at the same time, nor the animal and the horse; and the same must be said with respect to the other animals. For the end comes later, and each generation has an end peculiar to itself." Thus the man-species, and the horse-species and the species of all other animals, are treated in exactly the same way; and this is a clear proof that Aristotle was not cognizant of the other element contained in the intelligence. He will have it, therefore, that the body potentially possessed of life—viz., the body having in it the vital caloric, such as *semen*, and, in the vital caloric, nature or the vital principle, such as the male *semen*—as soon as it is organized and passes to the act of nutrition, develops the vegetative soul, and then in succession the other two acts, of feeling and understanding. "Wherefore," continues he, "it must be held as certain that in the *semina* and the *concepta* not yet separated there is the vegetative soul potentially, not in act, before the *concepta* already separated draw in, in their peculiar way, the nutriment, and thus perform the function of that soul. For at the first all these things seem to live only the life of an offshoot. And the same must be said of the sensitive and intellective souls; since it is necessary that all these souls should be had first POTENTIALLY and afterwards IN ACT."

Now, after having said that the three souls spring up like three successive acts of a body which has in itself the vital principle and develops itself, Aristotle proceeds to confirm his doctrine by proving that none of these souls can come from outside the body. "As for the rest," he says, "it is impossible that all these souls should have an antecedent existence; and this is proved by the following reasons. It is certain that those principles whose action is corporeal cannot exist without a body; for example, one

* A little before in the same chapter he had defined the animal thus: "That which is through the sensitive part of the soul." It would appear from these words, that he considered the sense

merely as a part of the soul, not as being itself a soul, in short, as a specific act of the body, not as the *subjectum* of the act.

cannot walk without feet. Consequently, it is impossible for these souls to come from without. Nor can any of them be added to the other as an accident, either by itself alone, or united to a body; because they are inseparable one from the other."

Having stated all this, having declared the three souls inseparable, and derived the intellective soul from the body just like the others, he subjoins, by way of conclusion: "It remains, therefore, that the mind alone is added from without, and that it alone is divine; for its action has nothing in common with corporeal action." Now this *mind* which Aristotle derives from without has been understood by some commentators to be the intellective soul; but this cannot be his meaning, because he had already laid it down that all the three souls, or parts and functions of the soul, come from the body itself, in which they exist potentially, and whose life is actuated in succession, becoming first vegetative, then sensitive, and finally intellective. Nay, he immediately adds, in confirmation of what he has said: "Indeed, each several virtue or power of the soul seems to unite itself to a different body,* and this more divine than those that are called elements; but as the souls differ in nobleness and ignobleness, so do the natures of their bodies differ." It remains, therefore, for us to inquire what this *mind* is which comes from without, although the intellective soul itself is an act and a perfection of the body.

182. Obviously, it cannot be anything else than a special faculty or quality which the intellective soul derives from without, viz., by communication with the external world.

Now, Aristotle holds that it is precisely from the external world that we derive ideas and universals. We must, therefore, see how, according to him, this derivation takes place. As I have already said, he has expressed his opinion on this matter in the last chapter of the second book of the *Posterior Analytics*.

* He means to say that by each new specific act to which the body rises, this becomes specifically different from the one that preceded it.

There the Philosopher undertakes to explain how it is that the first principles of reason are known to us by immediate knowledge. And after saying that they cannot be innate in us, because, if they were, we should be conscious of the fact* (this is the usual allegation of the Sensists, whose futility I have demonstrated elsewhere†), he says that we must, therefore, have SOME POWER which enables us to acquire them. But the mere admission of such power does not give us any information as to the way in which they are actually acquired. Indeed it leaves undecided the far deeper question, "Whether the existence of the power of acquiring the principles of reason is possible without that power being in possession of some principle, or some idea, to serve it as an instrument and guide in its operation."‡ Aristotle goes on to say that all animals have this power, because they all have sense; and thus he assigns to sense the office of forming the principles of reason. Does he, then, admit no difference between *feeling* and *understanding*? He *does* admit a difference, and reproves those who first philosophized for not having seen it, and having, therefore, confounded sense with intelligence. But (like the modern Subjectivists who, though they are Sensists, would not be called so) he confined that difference within the sphere of animal sensitivity, by making the act of understanding to consist merely in a *permanence* of the thing felt. Here are his words; "It appears that all animals have this, because they all have an inborn opinative power (δύναμιν κριτικὴν) called *sense*. But in some animals there takes place the permanence of the felt, and in others not. Now, those animals in which this permanence does not take place have merely a knowledge which does not go beyond sense: in fact, they have no knowledge, or if they have, it does not embrace those

* This follows logically from the definition which Aristotle gives of the Intelligence in the XIVth Book of the *Metaphysics*, c. ix: καὶ ἔστιν ἡ νόσις νόσις νόσις, and which, as I have elsewhere observed (*Psychology*, 79), involves a manifest contradiction.

† *Restoration of Philosophy*, &c., Bk. I, c. iii, and *seq.*; *New Essay on the Origin of Ideas*, 469-70.

‡ That this is not possible, I have shown in *The New Essay on the Origin of Ideas*, 234-5, 280, &c., 1008, &c.

things in respect of which the permanence does not occur. And as regards those animals in whom such permanence occurs, their having in the soul a certain unity (for many felts leave in the soul one permanent only), is already a difference so great as to explain how it is that they, through the permanence of these felts, come to be gifted with reason, while the others do not." *

Here we clearly see how, according to Aristotle, reason, that is the mind, comes to some animals, namely, to men, from without. Many sensations like to one another, and caused from without, concur in leaving in the soul a single, but permanent, impression; and it is in this impression that the Philosopher sees the generation of the mind or reason, which has for its characteristic property to contemplate many things as one.

But it is one thing for many sensations to leave in the soul but one impression, as happens even in the brutes, in so far as the sensations are similar, and another thing for the soul to take that one impression, which remains in the internal sense, as the type whereby to recognize all the sensations corresponding to it, and not merely the actual, but also ALL THE POSSIBLE sensations. To do this belongs to man alone; for man alone thinks the POSSIBLE, and it is only the POSSIBLE that constitutes the UNIVERSAL, the explaining of which is precisely the knot of the question. This knot our philosopher passes over very lightly indeed; nay, he does not even seem to know that the nature of the universal lies wholly in the concept of the possible, or, which is the same, in the purely ideal.

He, therefore, continues to explain how the sensation remains in the soul, leaving in it a permanent element, thus: "Now, therefore, as we have said, from the sensation there comes memory,† and from the memory many times repeated of the same thing, experiment. For,

* *Posterior Analytics*, Bk. II.

† Francis Burana renders *observation*. Averroës comments thus: "It is called memory when the sensible thing remains in the soul after the sensible

object has been removed." This, however, is nothing but the phantasm continuing in the soul; hence we are still within the sphere of sense.

several such memories make one sole experiment; and the experiment which comes FROM EVERY UNIVERSAL QUIESCENT IN THE SOUL, or FROM THE ONE OUTSIDE THE MANY, provided it be the same in them all, is the principle of Art and of Science. If that *one* is taken according as it is in generation, it is the principle of Art; if it is taken IN SO FAR AS IT IS BEING, IT IS THE PRINCIPLE OF SCIENCE."

183. In the Ideology I have ventured upon the remark that this is in all the works of Aristotle the passage in which he comes nearest to the true theory of the origin of ideas, inasmuch as he speaks of a *universal quiescent* in the soul, and says that "the *one* in so far as it is *being* is the principle of Science." It must, however, be confessed that when the whole matter is carefully considered, it remains, to say the least, doubtful whether by these admissions he extricates himself from the trammels of sensism. In the first place, that *quiescent universal* is interpreted by Abraham de Balmes and Francis Burana as meaning "a universal constituted and established in the soul by the many previous memories or reminiscences;" so that it is not the universal existing in the soul that gives unity to the many memories, but it is the many memories that leave unity, and through it the universal, in the soul. Such also is the interpretation of the Arabian commentator. Indeed, it is clear that sense can, after the actual sensations have gone, leave images in the fancy, and that many images associated with one another and with new sensations can produce the instinct of action in such a way that it will imitate rational action, from a kind of instinctive expectation of similar cases, as I said in the *Anthropology*, when explaining how it is that the brutes [though they have not the faculty of reason] follow in their action an order similar to that which we see in human action.† But this will never account for a *universal concept*, by which the mind contemplates an object in its pure *possibility*, whereas phantasms do not go beyond the *reality* of things, past and present, and produce nothing further

* *New Essay*, &c., 251 n.

† Nos. 416-494.

than an inclination for and an expectation of similar things (without, however, any idea of similarity).

184. Hence the most acute commentators, St. Thomas for instance, have regarded the *universal quiescent* in the soul, not as the unity of the fantastic effect left in the soul by the various memories and images, but as a new thing which Aristotle tried to introduce here, so to speak, by stealth. They have held that by this *quiescent universal* he really meant a principle existing in the soul, a principle by virtue of which the *experiment*, viz., the effect left in the soul by the memories, is extended to the future, in fact, to the possibles, thus becoming universal in act. And if we bear in mind that, for Aristotle, whatever comes to be in the soul in act pre-existed potentially in it, we shall not think it at all improbable, that by *quiescent universal* he meant *potential universal*. But let us hear the Doctor of Aquin himself:

"Now what the Philosopher says is this: As experiment comes from memory, so also it comes from experiment, OR ALSO ULTERIORLY from the universal quiescent in the soul" (here we see how, according to St. Thomas, the *quiescent universal* is not the effect of experiment, but is the ulterior cause of the universal concepts, which, given experiment, are formed), "namely, because this is taken as being IN ALL THINGS what experiment is in some. And, indeed, this universal is said to be quiescent in the soul in this sense, that it is considered outside the singulars, in which there is movement. The Philosopher also says of the same universal that it is the one outside the many, not, indeed, according to being" (*i.e.*, subsistence), "but according to the consideration of the intellect" (*i.e.*, according to the idea), "by which we consider a given nature, for example, the nature of man, without attending to Socrates or to Plato. But although, according to the consideration of the intellect, this is the one outside the many, nevertheless, according to being, it is one and the same in all the singulars, not indeed numerically, as if the human nature were numerically the same in all men, but ACCORDING TO THE NOTION OF THE SPECIES" (that is, again, according to

the *idea*).—"From this experiment, therefore, and from the said universal acquired by means of experiment,* there comes to be in the soul that which is the principle of Art and of Science, &c."

According to this interpretation,

1° Many sensations form a memory, many memories form an experiment, and from the experiment, and the quiescent, that is the potential, universal, there comes the universal in act.—It is unnecessary for me to observe, that from the sensation there comes the phantasm, as also a certain retention, a certain sensible vestige of the sensation that has been experienced, which leads the animal to revive the phantasm. But for the *memory* of sensations and of phantasms, the understanding is required, if by *memory* we mean the ideas which remain in us of the sensations we have had. There is, therefore, a leap from the order of sense to that of intelligence, without any explanation being given of such a transition, or rather without the great leap being so much as perceived.—After this, the reasoning goes on very smoothly, because the universal is already taken for granted: nothing remains but to separate or abstract it;

2° Nevertheless, it is acknowledged that the nature of the universal consists in this, that by it the soul conceives as applicable to all possible similar cases what it has found to happen in a certain number of real ones. But, again, no explanation is offered of how the soul comes to extend its vision to the whole sphere of the possible, a sphere which infinitely exceeds any number of actual sensations;

3° It is also stated, that the universal is "the one outside the many" (*unum præter multa*). Now the "many" are real and singular; and the soul that contemplates the universal does not find it in them, but intues it outside of them. The oneness of this universal is not due to the subsistence of things, because, as regards subsistence,

* Here it seems, on the contrary, that the quiescent universal is still the effect of experiment; unless indeed this uni-

versal were to be understood as the universal concept, not in a potential state, but in act.

each individual thing has its own, separate from that of the others, on which account the individual things are many. It is due to the "consideration of the intellect" (*secundum considerationem intellectus*), because only the intellect sees that what has been experienced CAN be repeated *ad infinitum*, in other words, sees the POSSIBLE. Nevertheless, not a syllable is said as to what this *possible* is which is not found in the individual things acting on the sense. In fact, this is the gap always left in the Aristotelian system, an enormous gap, inasmuch as it cuts out the whole question;

4° It is said that the *One* is of two kinds: first, that which is "outside the many" (*præter multa*); and this is neither subsistent nor sensible, but only intued by the intellect; the other is that which is subsistent (*secundum esse*); and this exists in all the singulars (*in omnibus singularibus*). It exists in the singulars, yet it is not *one* numerically, but specifically (*unum et idem non quidem numero, sed secundum rationem speciei*). In this way, however, the difficulty returns; because the *notion of species* belongs purely to the intellectual order, and hence cannot be found in singulars; for in singulars there is only the subsistence, which is peculiar to each, apart from the others, and for this reason does not constitute *one* in many of them. It is solely in the mind which considers and compares many of them together. Nor can such comparison be made except by confronting the singulars with a common exemplar, that is to say, with their idea or species; so that the *one* is always in the idea and supposes it.*—But whence comes the idea? This is the question which is never answered in this system; the void which is never filled up. The very thing that we are in search of is always presupposed.

185. Here we have the true source from which Sensism in all its forms has always originated. It consists in supposing that the *One* is twofold, namely, that it exists, (a) in many real individuals in so far as they are subsistent (*secundum esse*), and (b) in the intellect (*secundum considera-*

* *New Essay on the Origin of Ideas*, 180-186.

tionem intellectus). The truth, however, is that nothing that exists in one real individual makes unity with anything that exists in another. Each real individual is altogether divided and separate from every other. The individuals are many, but their plurality has in it no unity except in relation to the intellect, which knows them all through one and the same idea. Hence, the *One* "according to the consideration of the intellect," and that "according to the notion of the species," are not two units, but one only, expressed by two phrases which at bottom mean the same thing. But as men always speak of real individuals *in so far as known*, and, on the other hand, imagine that they are speaking of real individuals *purely and simply*; it comes to pass that the *One* which they find in the known-individuals is supposed by them to subsist in the real individuals themselves; whereas it resides solely in the cognitive element which they have added to them by the act of knowing them; and that element is the idea or species through which they know them.

186. It was, therefore, by this illusion that Aristotle was led to attribute to the real individuals themselves what belongs only to the real individuals in so far as known, I mean the cognitive element, the *One* which resides in their idea alone. And as the real individuals, in order to be known, must come within the perception of sense, he went further and attributed to this perception the making of the universal, inasmuch as from it comes memory, and from memory the experiment which becomes universalized; whence it followed that there was not in man any innate knowledge in the sense of an innate habit. At this point, however, the Philosopher clearly seems to vacillate. For, although according to his premises he ought to have concluded that there are no innate habits of knowledge, he dares not do so, but limits himself to denying the innateness of *determinate* habits—a limitation the explaining of which has given a vast deal of trouble to commentators, who have never been able to come to anything like agreement. I will resume the quotation from the

second book of the *Posterior Analytics*, beginning from where I left off at n. 182 :

"There are not, therefore, any innate *determinate* (αφωρισμέναι) *habits*, neither do (the habits of knowledge) proceed from others more known ; but they all come from THE SENSE, much in the same way as when, in a battle, the struggle is turned into flight. For if one of the fugitives happens to stop, the one behind him stops also, and likewise the next, and so on until the end of the file. The nature of the soul, however, is such as to render it capable of suffering this,—For if one of the indifferents " (viz., of those qualities which are common to many) "has remained in the soul, that first in the soul is universal ; for that which is felt is indeed singular, but the feeling of it is universal " (in other words, although the sensible object is particular, the sensation itself is universal, such as may serve for an exemplar), "as, for example, the feeling of *man*, and not of the man Callias. Again, on these " (first universals) "the mind continues to dwell until it finds in them the indivisibles " (the common universals), "and then causes the " (more generic) "universals to remain in the soul, as, for example, when by dwelling on a special kind of animal " (say, on man) "it arrives at the [genus] animal. And the like must be said in respect of these " (second universals). "It is, therefore, plain, that the first " (universals) "become known to us through induction ; since IN THIS WAY THE SENSE FORMS THE UNIVERSAL."

187. The Sensism expressed in this passage is manifest ; and yet the Philosopher is still doubtful and hesitating about it. For while he ascribes the forming of universals to the sense, he also declares that the sense cannot produce them in every soul, but only in such souls as are capable of suffering this effect (*Anima vero talis est ut possit hoc pati*). And, although the word *suffer* has an exceedingly sensitive ring, inasmuch as it seems to imply that the sense alone acts, and that the soul receives the universals from the sense in the same way as the wax receives the impression from the seal ; nevertheless, by comparing

this with other passages in which Aristotle introduces into the soul a *light*, which he calls "the light of the acting intellect," we find that he shrinks from denying that there is in the soul a *formal* principle whence universals are derived. Hence St. Thomas comments on the same passage, thus: "Some might think that the sense alone or the memory of singulars was sufficient to produce the intellectual cognition of the principles, as some of the Ancients said who did not distinguish between sense and intellect. In order, therefore, to exclude this error, the Philosopher subjoins, that, together with sense, we must suppose the soul TO HAVE SUCH A NATURE AS TO BE CAPABLE OF SUFFERING THIS, that is to say, as TO BE SUSCEPTIVE OF UNIVERSAL COGNITION, which is effected through the possible intellect; and, moreover, that the soul can do this through the acting intellect which produces the intelligibles in act by abstracting the universals from the singulars."

From this we can see, that although Aristotle himself, in this place, requires nothing more than that the soul should be such *ut possit pati hoc*, nevertheless, St. Thomas, reconciling this passage with others of the same philosopher, adds that the soul must, moreover, be such *ut possit agere hoc*; and this is already a receding from Sensism.

Now, what is the *possible intellect*?—Nothing but the intellect or intellectual soul in potentiality. And what is the *acting intellect*?—Nothing but the virtue which the intellectual soul in potentiality has of becoming intellectual in act, an act which comes to it from without, viz., from the sensations. As to St. Thomas's remark that the acting intellect "produces the intelligibles in act by abstracting the universals from the singulars," it confirms what I have said (185) about the error from which every kind of Sensism, without exception, has always originated—a fact which is never sufficiently considered. For, if a man has to abstract the universal from the singular, what singular will he abstract it from? Certainly from that which he has already conceived in his mind; for upon those singulars

which he has not yet conceived, and has not, therefore, before his mind, he cannot exercise any mental operation. Now I would ask: are the singulars already conceived, from which man abstracts the universals, the very same thing, neither more nor less, as the singulars not yet conceived? This is what remains to be seen, because it may very well be that the mind, in conceiving them, has added to them something which they have not in their own simple reality. Aristotle, however, forgot this entirely; indeed, the very possibility of such a question being raised seems never to have occurred to him. And yet herein lies the whole gist of the matter in dispute. Now, when the question is stated as it ought to be, it is easy to discover that the singulars, as existing in the mind, are not by any means the same as they are in their pure reality outside the mind; for in entering into the mind they have become associated, on the one hand, with sensation, and, on the other, with the idea through which they were conceived; and it is just this idea that constitutes the universal.

188. Passing, therefore, in review the analysis which Aristotle makes of human cognitions, and the order in which he distributes them, we find, 1° that the cognitions most remote from their origin consist in *conclusions*; 2° that these must be preceded in the mind by the *principles* from which they flow; hence, in the first book of the *Physics*, he says that universals are known before singulars; 3° that as regards the first principles, there is no *medium* through which they can be demonstrated: they are recognized as evident as soon as their terms are conceived, because in the propositions which express them, the predicate is contained in the notion of the subject (synthetic judgments); 4° that, therefore, the question of the origin of human cognitions is reduced to this: "What are the first terms which the human mind conceives?" For, given these terms, we at once have the first principles, and from them the immediate conclusions, which are principles in respect of the more remote ones.

Now, according to Aristotle, the terms first known are

BEING and the ONE,* which, indeed, do not differ from one another save in the aspect under which they are viewed. Consequently, his theory of the origin of human ideas and cognitions depends wholly upon the question: "How is *being* known? How is the *One* known in the many singulars?" The question in this form is admirably put; and although we do not find it proposed in these express terms in any of the works of the Stagirite, it is obviously implied by the whole tenor of his doctrine. I have already indicated his solution of it, but I must beg leave to dwell a little longer thereon.

189. He has recourse to two causes: the sense, and the peculiar nature of the soul, which is so constituted that it can stop to consider, in the sensible, the common or universal. Hence, in the second book of the *Posterior Analytics*, he lays it down that sensible knowledge is anterior to the knowledge of universals.†

This, however, as I have already observed, is not yet an explanation of the origin of our cognitions. To say

* In the first book of the *Physics*, Aristotle says that "the way which leads us to find out, from things known, things that are unknown or less known, is innate in us;" also, that "the knowledge of conclusions is potentially contained in the principles." And in the first book of the *Posterior Analytics* he places those principles which are of immediate evidence among the things which everyone applying for instruction in any science must necessarily know beforehand. St. Thomas comments on this as follows: "It must be observed, that every proposition in which the predicate is contained in the notion of the subject" (synthetic judgments) "is immediate, and, so far as regards itself, known *per se*. But in certain propositions the terms ARE SUCH AS TO BE KNOWN TO ALL MEN; such are the terms BEING and ONE, and others which express THINGS APPERTAINING TO BEING IN SO FAR AS IT IS BEING" (I have called these by the name of *elementary ideas*). "FOR BEING IS THE FIRST THING CONCEIVED BY THE INTELLECT. Hence it is necessary that these propositions should be, not only as regards themselves, but also as re-

gards us, known *per se*; for example, the propositions, 'It is impossible for one and the same thing to be and at the same time not to be,' or, 'The whole is greater than the part,' and others like these."

† In the first book of the *Posterior Analytics*, Aristotle says that particulars are known by us before universals, because our cognitions begin from sense. In the first book of the *Physics*, on the contrary, he says that the universals, in regard to us, come first, although they are not first as regards their nature. St. Thomas (*Lect. I, in Physic.*) reconciles the two statements by observing that, in the first of them, the Stagirite compares the *intellectual* cognition with the *sensible*, and places the latter before the former; whereas, in the second, he compares together two intellectual cognitions, one more universal than the other, and assigns a priority of time to the former over the latter. Thus, according to Aristotle, there would be, 1° sensible cognition, 2° the intellectual cognition of the most extended universals, 3° the intellectual cognition of the less extended universals.

that the soul has the power of forming cognitions—a mere truism, of course—is not enough; it is furthermore necessary to show by what steps this power proceeds in producing them, and on what conditions it can produce them.

Aristotle tries to do this also. The soul, he says, is so disposed that, on receiving sensations, it retains the part which they have of *common*, and this he calls *memory*. Then, by comparing many memories together, it again retains the part which these also have of *common*, and he gives to this the name of *experiment*; and so, by further and further abstractions, it goes on till it reaches the last abstracts, and the first principles of reason.

But, setting aside the fact that here we have no explanation of how the idea of *substance* originates (because the substance of beings external to us is not contained in our sensations), what I principally wish to observe is, that all this Aristotelian discourse supposes the *common* or *universal* to be contained in the sensible real or in the real sensation itself; for if it were not therein contained, the soul could not fix its attention on it and abstract it. The truth, on the contrary, is, that every external reality, as also every real sensation, is absolutely limited to itself alone, is wholly and solely real and finite, so that there is nothing in it common to any of the others. Hence, to speak of a *common* or *universal* as contained in a sensible real or in the sensations which that real produces in us, is a blunder.

How, then, did Aristotle come to imagine that the *Common*, the *Universal*, the *One*, *Being*, could be found in the things which fall under our senses?—Simply through that common illusion which I have already indicated, the illusion of attributing to the *pure real* what belongs only to *the real already conceived* by the mind.

190. I wish to repeat it, for it can never be said too often: the sensible real which contains the common or universal is the sensible real *as it exists in our mind that has perceived it*; for it is the object on which the abstraction is exercised, and abstraction cannot be exercised on a sensible-real that is not yet in our mind. It is, therefore,

necessary to explain the intellective perception; and this I have done in the *New Essay*, &c. That explanation showed that the intellective perception "is the felt real in so far as the mind sees it in ideal being as a realization thereof." Granting this, it is clear that the sensible-real-intellectively-perceived, on which the abstraction is performed, contains the *common* or *universal*, because it is no longer a pure real, but a real seen in the ideal; it is an object real-ideal, particular-common, and not real and particular only. The *common* or *universal* can, therefore, be abstracted from it.

191. Here I ought to come to a conclusion by summing up the way in which Aristotle conceives that the mind or intellect comes to the soul from without; but I cannot do so without first saying a few words on a point of philosophical history which, though but little known, is the true origin of the celebrated question so long agitated between the *Realists* and the *Nominalists*, as also of their respective opinions. We find these opinions accurately set forth in the work of Abelard *On the Five Voices of Porphyry*, which I have quoted before from the *Codex Ambrosianus*.

The sensible-real-being that has been perceived by the mind is the object on which that abstraction is performed which separates from it the *Common*. Here there arises at once the question "whether the *Common* be in the things, or in the mind?"

First of all it must be observed that the *One*, or the *Common*, or the *Universal*, come to nearly the same thing; for, *common* means nothing but what is *one* in many beings, and *universal* means what is *one* in all possible beings of a given class, or in all beings generally.

Aristotle, as we have seen, ascribed the *One* to real things (*unum in multis*), and placed in this the principle of *art*; and he also ascribed the *One* to the intellect (*unum præter multa*), and placed in this the principle of *science*.* Now it is clear, that for him the *unum præter multa* was the *common* abstracted and separated from things—their specific or generic idea—which certainly is in the intellect,

* *Analytic Posterior*, II, xix.

and constitutes the principle of science, inasmuch as science treats of things theoretically and by means of abstraction. It is also clear that the *unum in multis* is simply the *common* referred by the mind to the singular real things perceived; for, the concept or idea formed in our mind, though but one in itself, is united and bound up with each of those things, and, in so far as it is united and bound up with each, I have called it by the name of *particular idea*.* And this is the principle of *art*, because art is a habit of operating with order in regard to particular real things. But the order with which art operates is consequent upon these things having been perceived by the mind, and found to be either similar or dissimilar. In fact, when are many real things said to be *similar*?—When one and the same idea is contemplated in them all, or, to speak more accurately, when they are all contemplated in one and the same idea.

Supposing, therefore, that Aristotle, by the *unum in multis*, had meant the common as contained in the intellectual perceptions, and by the *unum præter multa* the common as contained in the idea separated from the perceptions, he might with very good reason draw a distinction between the first *unum* and the second, and at the same time affirm, that although thus viewed in two different ways, the *unum* itself was identically the same in both cases.†

But unfortunately he did not take the thing in this way, nor perceive that his reasoning, which would have been quite sound if he had spoken of the *real being as conceived by the mind*, was altogether wrong from the moment that he spoke of the *real in its mere reality*. Hence his most grievous and fatal error, I mean that of applying to the pure real, and to sensation, which is also itself a singular real, what could only apply to the real perceived by the mind, and, as a consequence, the error of deriving the Universal, the Common, the One, from the senses. This second error he did, indeed, try to amend in some degree,

* See *New Essay*, &c., 43 n. and 63.

† "Aut uno præter multa, quod utique

in omnibus unum sit illis idem." *Analyt. Poster.*, II, xix.

by saying that the soul had a power by which it could fix its attention on the common; but the attempt was futile, because the common on which the attention rested was always supposed to be in the real things themselves.

192. Truth obliges me to say, that this Aristotelian error has never yet, so far as I know, been detected by any one; and this I believe to be the reason why the explanation of Universals became the inevitable stumbling-block of Philosophy, and gave rise to those endless, irreconcilable disputes which have continued from the age of Aristotle down to our own without leading to any settled conclusion, and have at last so wearied men as to make them feel disgusted with Philosophy itself.

The earliest commentators contented themselves in the main with merely repeating what had been said by Aristotle, and they placed the common now in the sensible-real, now in the intellect, now in both of them together, without much consistency, and without even suspecting the difficulty. Later on, the matter being more carefully considered for the purpose of giving a scientific and exact expression to the Aristotelian doctrine, some confined their attention to the *unum in multis*, and said that the individual real things had truly in themselves something which was Common and One. According to them, therefore, the Common, or the "One in the many," belonged to the order of reality. These were the *Realists*.

193. But they very soon began to disagree among themselves. Abelard informs us that in his time they were divided into two sects. The first, holding firmly that the Common must be a real entity, excluded altogether from it every intellectual element, and maintained, therefore, that the Common, or the One which is in things, lay in their *matter*, and the proper in their *form**—a most erroneous system, inasmuch as it implied the absurdity that the identical matter assumed at one and the same time all the various forms in which things present them-

* The passage in which Abelard expounds this opinion was quoted above (178, note).

selves. They thus confounded the property of matter with the property of *ideal being*, which, remaining always the same in itself, is actuated and realized in all forms. It was, in fact, a going back to the *intelligible matter* of Plato and the Philosophers anterior to him. The system, however, had, as it were, two faces; for if matter was taken as *real* matter, it issued in an absurd materialism, by changing the *communissimum*, or the *intelligible*, into brute matter; and if matter was taken as *intelligible* matter, it issued in an equally absurd idealism, by changing brute matter into an idea.

194. The second sect of Realists maintained that the *common* was in the real things, not in so far as they consisted of matter, but in so far as there was similarity between them. Clearly, this was adding to the real things an intellectual element; but these thinkers had apparently no notion of any such addition having been made, the addition of the idea, in which alone the similarity of things is found; for it is only by seeing things in ideal being that we can compare and measure them together.* They thought, on the contrary, that nothing was added to the things save the act by which the mind directed its attention to them, and hence they supposed that the similarity which they saw was in them in so far as they were real, and not in so far as they were *perceived* by the mind, which was precisely the error of Aristotle.†

* See *New Essay on the Origin of Ideas*, 180-187.

† "Unde alii aliter de universalitate rerum sentientes, magisque ad sententiam rei accedentes, dicunt res singulas, non solum formis ab invicem esse diversas, verum personaliter in suis essentiis esse discretas, nec ullo modo id quod in una re est, esse in alia, sive illud materia sit, sive forma: nec eas, formis quoque remotis, minus in essentiis suis discretas posse subsistere. Quare earum discretio personalis, secundum quam scilicet hæc res non est illa, non per formas fit, sed est per ipsam essentiæ diversitatem: sicut et formæ, ipsæ in se, in ipsis diversæ sunt invicem: alioquin formarum diversitas

in infinitatem procederet, ut alias ad aliarum diversitatem necesse esset supponi. Talem differentiam Porphyrius notavit inter generalissimum, et specialissimum dicens: 'Amplius neque species fieret, neque generalissimum, neque genus specialissimum;' ac si diceret: 'Hæc est earum differentia, quod hujus non est illius essentia.' Sic et prædicamentorum discretio consistit non per formas aliquas quæ eam faciant, sed per propriæ diversitatem essentiæ. Cum autem omnes res ita diversas ab invicem esse velint, ut nulla earum cum alia tum eandem essentialiter materiam, tum eandem essentialiter formam participet: universalitatem tamen rerum adhuc retinentes iidem, non essentialiter

195. But, as it usually happens that when a doctrine is not clearly and precisely defined, it is understood differently by different people, this second sect came again to be broken up into two schools. The first maintained that the universal, supposed to be in the particular real things, was the result of their *collection*, and could not be said to exist in any one of them taken singly;* the second held that it was contained in the nature itself of each particular thing.†

196. Now prescinding, of course, from the fundamental error which both schools committed, of substituting the *real intellectually perceived* for the *pure real*, it is easy to see that they were both right. For, on the one hand, it is certain that in each perceived real there is the idea in which the mind sees it; consequently there is the *common*, because each idea is a common exemplar of all possible individuals of the class constituted by that idea. Under this aspect, then, the second school had truth on its side. If, on the other hand, we consider that so long as the mind has before it only one perceived real, it is not in a position to advert to the fact that the common is therein

quidem, sed indifferenter ea quæ discreta sunt universalia appellant; veluti singulos homines in se ipsis discretos, idem esse in homine dicunt, id est non differre in natura humanitatis, et eosdem, quos singulares dicunt secundum discretionem, universales dicunt secundum indifferentiam, idest similitudinis convenientiam."

* "Sed hic quoque dissensio est. Nam quidam universalem rem nonnisi collectionem plurium sumunt, qui Socratem aut Platonem per se nullo modo speciem vocant, sed omnes homines simul collectos speciem illam, quæ est *homo*, dicunt; et omnia animalia simul accepta genus illud, quod est *animal*: et ita de cæteris. Quibus illud Boëtii consentire videtur: '*Species nihil aliud esse putanda est, nisi cogitatio collecta ex individuorum substantiali similitudine.*' Cum enim ait: *collecta multitudo*, plura colligentem insinuat. Alioquin nullo modo prædicationem de pluribus, tum multorum continentiam in universali re haberent: nec pauciora universalia, quam singularia essent."

† "Alii vero sunt, qui non solum collectos homines speciem dicunt, verum et singulos in eo quod homines sunt: et cum dicunt rem illam, quæ Socrates est, prædicari de pluribus, figurative accipiunt: ac si dicerent, plura cum eo idem esse, id est convenire; tum ipsum cum pluribus: qui tot species quot individua, quantum ad rerum numerum ponunt, et totidem genera. Quantum vero ad similitudinem naturarum, pauciorum numerum universalium, quam singularium assignant: quippe omnes homines et in se multi sunt per personalem discretionem, et unum per humanitatis similitudinem: et iidem a se ipsis diversi quantum ad discretionem et similitudinem judicantur: ut Socrates in eo quod est homo, a se ipso, in eo quod Socrates est, dividitur. Alioquin idem sui genus, tum species esse non posset, nisi aliquam sui ad se differentiam haberet: quippe relativa sunt, aliquo saltem respectu convenit esse opposita."

contained, but makes this advertence as soon as, having several perceived reals before it, it compares them together, we see plainly that it is only in the collection of many reals present to, and compared by the mind, that the common is distinctly recognised. The difference, therefore, between the two schools consisted in this, that one fixed its attention on the *common in itself*, which is contained in the single perceived reals, and the other fixed its attention on the *common known by man as common*, which, evidently, can be observed only in a collection of individuals, that is, in the relation of similarity which each of them is seen to have with the others.

But as those thinkers did not reflect that the real object in which the common is found, being a conceived real, was a mixture of real and ideal, it followed that both their systems presented certain weak sides, and when assailed on these, they were easily overthrown.

197. This gave occasion to the system of the *Nominalists*, who fell into the opposite extreme. If the Realists stopped in the real without noticing the ideal conjoined with it in the mind, the Nominalists in their turn excluded the ideal altogether. Seeing that in the mere real the Universal could not be found, they concluded that the Universal was nothing but a name.*

198. Accordingly, Abelard, who sided with the Nominalists, undertook to refute both the above named schools of Realists.

The school which placed the Universal in a *collection* expressed badly its meaning, which was, undoubtedly, to indicate the similitude which is found in a plurality of individuals. For the word *collection* denotes only a finite number of real individuals, whereas the *universal* is found

* I have submitted a refutation of the *Nominalists* in the *New Essay on the Origin of Ideas*, 136-210. It is singular to see how the modern Nominalists have had recourse to the collection of individuals in order to explain the Universal, after the manner of the Realists, whereas the ancient Nomi-

nalists had fully demonstrated against their adversaries, that the *universal* or *common*, and the *collection* of individuals, are two very different things. See what I have said about this error of Dugald Stewart in the place just quoted.

in all possible individuals of a species, and these are indefinite in number. Against this School Abelard argued thus :

“As Boëtius has well said, the Universal, if it is a true Universal, must be found entire in each of the individuals. But the collection is not found entire in each of the individuals; therefore the collection is not the Universal.*—Moreover, if the collection, *e.g.*, of all existing substances, corporeal as well as spiritual, is the supreme genus [substance in general], the consequence will be, that if we take away from that collection one or more substances, we shall have another supreme genus of substance, and so there will be many supreme genera in the order of substances [a preposterous thing to say].†—Moreover, every Universal is by its nature anterior to the individuals comprised under it: ‘Omne universale propriis individuis naturaliter prius est’ (a remarkable confession this in the mouth of a Nominalist). But the collection is constituted by nothing else than a number of individuals, and hence is logically posterior to them; therefore the collection is not the Universal.‡—Lastly, Boëtius distinguishes the *entire* from the *universal*, and observes that in the entire

* Nunc autem prius infirmemus sententiam quæ prius posita est de *collectione*: et quomodo tota simul hominum collectio, quæ una dicitur species de pluribus prædicari habeat, ut universalis sit, perquiramus. . . . Tota autem de singulis non dicitur. Quod si per partes de diversis prædicari concedatur, in eo scilicet, quod singulæ ejus partes sibi ipsi aptentur: nihil facit ad communitem universalis, quod totum in singulis, teste Boëtio, esse debet; atque in hoc ab illo communi dividitur, quod per partes commune est: sicut agitur cum diversæ partes sunt diversorum. Propterea et Socrates similiter de pluribus per partes diversas diceretur, ut ipse universalis esset. Amplius, quolibet plures homines simul acceptos inde universales dici conveniret, quibus similiter definitio universalis aptaretur, sive etiam speciei, ut jam tota hominum collectio multas includeret species.

† Similiter quamlibet corporum et spirituum collectionem unam univer-

salem substantiam diceremus: ut cum tota substantiarum collectio sit unum generalissimum, una qualibet dempta cæterisque remanentibus, multa in substantiis haberemus generalissima. Sed fortasse dicitur nulla collectio, quæ inclusa sit in generalissimo, esse generalissimum. Sed adhuc oppono, quod, si una separata de substantiis collectio residua non sit generalissimum, et tamen adhuc universalis substantia permanet, oportet eam speciem esse substantiæ, et coæqualem speciem habere sub eodem genere. Sed quæ potest ei esse opposita, cum, tum species substantiæ in ea prorsus contineatur, tum in eodem cum ea individua communicet, sicut animal rationale, animal mortale?

‡ “Omne universale propriis individuis naturaliter prius est; collectio vero quorumlibet ad singularia quibus constituitur, totum est integrum, atque eis naturaliter posterius ex quibus componitur.”

the part is not the whole. In the Universal, on the contrary, the species identifies itself with the genus. Now, if the collection of men is the species, and the collection of animals is the genus, how can the first collection identify itself with the second?*"—These arguments were unanswerable.

199. He overthrows also the second school of Realists, as follows:

"If the Universal is in the single individuals and not outside them, then we must admit that it is the single individuals that are predicated of many other individuals, in so far as they resemble one another. But if so, what becomes of the definition of the individual, viz., 'that which is predicated of one only?' And how shall we be able to distinguish the Singular from the Universal if an individual is predicated alike of one and of many? For example, that which is in the man (universal) is in Socrates (singular). If, therefore, it is the individual that is predicated in so far as it is universal, man and Socrates will be two individuals, inasmuch as the same thing is predicated of both, viz., humanity; or they will be two Universals, because Socrates, in so far as he is man, is predicated of universal man.†—Again, the individual cannot be divided. If, then, the Universal does not exist as such, but is only the Particular, so that the same man who is in Socrates is Socrates, as they maintain, since they admit no difference between the one and the other, we have then the absurdity that one particular is the other particular.‡—Again, the individuals

* "Inter integrum et universale hanc Boëtius differentiam assignat in *divisionibus*, quod pars non idem est quod totum: species vero idem est semper quod genus. At vero, tota hominum collectio quomodo esse poterit animalium multitudo?"

† "Restat autem nunc ut eos oppugnemus, qui singula individua in eo, quod aliis conveniunt, universale appellant, et eadem de pluribus prædicari concedunt, non ut plura essentialiter sint illa, sed quia plura cum eis conveniunt. Sed si prædicari de pluribus idem est quod convenire cum pluribus, quomodo individuum de uno solo dicimus prædicari, cum scilicet nullum sit, quod cum una

tantum re conveniat? Quomodo etiam per prædicari de pluribus, inter universale et singulare differentia datur, cum eodem penitus modo, quando homo convenit cum pluribus conveniat et Socrati? Quippe homo, in quantum est, homo est; et Socrates, in quantum est homo, cum cæteris convenit. Sed nec homo in quantum est Socrates, nec Socrates in quantum Socrates est, cum aliis convenit. Quod igitur habet homo, habet Socrates, et eodem modo."

‡ "Præterea, cum res penitus eadem esse concedatur, homo scilicet qui in Socrate est, et ipse Socrates: nulla hujus ab illo differentia est. Nulla namque res eodem tempore a se ipsa

differ from one another as well in matter as in form. But, according to the adversaries, the Universals are in the particulars; therefore, as regards what is in the particular, Socrates is one and the same with Plato; which is a contradiction."*

200. Having thus shown the utter untenableness of Realism, Abelard sees no alternative but to declare in favour of Nominalism; "Nunc autem ostensis rationibus, quibus neque res singillatim, neque collectim acceptæ universales dici possunt in eo quod de pluribus prædicatur, restat, ut hujusmodi universalitatem SOLIS VOCIBUS ADSCRIBAMUS."†

201. Here I may observe that Aristotle also gave occasion to Nominalism, by having taught *Dialectics* rather than

diversa est: quare quidquid in se habet, habet et eodem modo penitus. Unde et Socrates albus et grammaticus licet diversa in se habeat, a se tamen per ea non est diversus, cum utraque eadem ipse habeat, et eodem modo penitus. Non enim alio modo a se ipso grammaticus est, tum alio modo albus, sicut nec aliud albus est a se, tum aliud grammaticus."

* "Illud quoque quod dicunt Socratem cum Platone convenire, in homine quolibet accipi potest, cum omnes homines ab invicem tam materia quam forma differre constet. Si namque Socrates in re, quæ homo est, cum Platone conveniat, nulla autem res homo sit, nisi ipse Socrates, tum alius: oportet ipsum cum Platone, tum in se ipso convenire, tum in alio. In se autem potius diversus est ab eo: de alio quoque constat: quare nec ipse est alius.—Sunt autem qui, in homine convenire negative accipiunt, ac si dicerent: *Non differt Socrates a Platone in homine*. Sed et sic quoque potest dici, quod nec differt ab eo in lapide, cum neutrum sit lapis. Et sic non major eorum convenientia notatur in homine, quam in lapide. Nisi forte propositio quædam præcedat, ac si dicatur: *ita sit homo, quod in homine non differat*. Sed nec sic stare potest, cum omnino falsum sit, eas non differre in homine. Si namque Socrates a Platone non differt in re quæ homo est: nec in se ipso. Si namque in se differt ab eo, ipse autem sit res

quæ homo est, profecto et in re, quæ homo est, differt ab ipso."

† Nominalism seems to have developed itself in the eleventh century, an epoch in which there began a great restoration of Ecclesiastical Society, followed in due course by that of Civil Society. Its author is said to have been John the Sophist, physician to Henry the First of France (A.D. 1060). Next to him, we are told, came John Roceelin (called also Rosselin, Russelin, Rocelin, Rucellin), whose works were condemned in the Council of Soissons (A.D. 1092). Roceelin was succeeded by Abelard, whose works also were condemned in the Council of Sens (A.D. 1140).—Tennemann, in his *Manual*, traces the origin of the controversy between the Realists and the Nominalists to the study of Porphyry's book "On the Five Voices" (A.D. 304), in which book a number of questions are proposed regarding genera and species: "Sive subsistant, sive in solis intellectualibus posita sint, sive subsistentia corporalia sint an incorporalia, et utrum separata a sensibilibus, an in sensibilibus posita." Porphyry declared that he did not then intend to treat such questions, owing to their extreme difficulty. They all arose, however, out of the *Unum in multis*, and the *Unum præter multa* of Aristotle; and Aristotle himself only raised a controversy which had much exercised the minds of philosophers long before his time.

Logic, and presented ideas and argumentations under the clothing of words, and expounded the connections of the latter more than those of the former. The effect of this was that more attention was paid to the material word than to its inner and spiritual meaning, which was what Plato had kept chiefly in view. Hence the Predicaments of Aristotle were called the *Five Voices*, and philosophers, feeling extremely embarrassed in explaining Universals, regarding which every system presented insurmountable difficulties, ended by clinging fast to the word-theory as to a plank in shipwreck, substituting mere words for those most troublesome Universals, which were thus eliminated altogether from philosophy.

202. Abelard undertakes, therefore, to demonstrate that a common name, so long as it stands alone, presents no object to the mind, but may signify many objects; and that when it is determined by union with other words, it then signifies the particular. When, however, he comes to seek for an explanation of the cause why common names are given to things, he finds himself confronted by so terrible a difficulty, that in order to get a satisfactory answer* he is obliged to fall back on the *similarity* of singulars.† Indeed, this cause is one of those things which are so easy, so natural, that philosophers usually take them for granted and pass them over, although at the same time they hide within themselves an entire system.

203. Having said so much on this matter, we must now return to our main question, and sum up. Aristotle held that the *One* or the *Common* (which are nearly synonymous terms) is in the real things (*unum in multis*); that when such souls as have the requisite capacity (*e.g.*, the human soul) receive through the senses the impression of things, then there remains in them the *Common* together with the proper; that these same souls have the power of arrest-

* "Ut hæc vox *homo* et singulos nominat ex eorum causa, qua scilicet homines sunt: propter quam vocabulum *homo* universale dicitur, et intellectum quemdam constituit communem, non

proprium, ad singulos scilicet pertinentem, quorum communem concipit similitudinem."

† See *New Essay on the Origin of Ideas*, 182-186.

ing their attention on that common, abstracting from the proper, and thus forming the *abstract One*, the Common, the Universal which is in the soul (*unum præter multa*). This Universal, reduced to the ultimate abstractions, is the intellect or the mind, which comes to the soul from without.* But since the soul could not acquire this intellect unless it had the capacity *ad hoc*, it follows, says Aristotle, that the soul has the intellect potentially (possible intellect), and afterwards acquires, from without, the intellect in act (acting intellect) through the power it has of confining its attention to the common and abstracting it, on the assumed principle that *intellectus in actu est intellectum in actu*. Such, in a few words, is Aristotle's whole theory of the soul. The soul always remains an act, a perfection, an entelechy of the body. The intellect is separated from it when the knowledge of the *common* is lost, and it is acquired by it when that knowledge is re-

* Hence Aristotle in classifying the habitual cognitions assigns the highest place to *science* and to the *intellect*, and places the intellect before science, making it to consist in the knowledge of the first principles. "Science and Intellect," he says, "are always true. Now there is no kind of science more certain than the intellect. But since the principles of demonstration are the most known things, and, on the other hand, every science proceeds by way of reasoning, it follows that science is not the knowledge of those principles. And since as a matter of fact there is nothing more certain than science save the intellect, we are bound to admit that the intellect consists in the knowledge of the said principles." Hence he draws the conclusion that "the intellect is the principle of science" (*Poster. Analyt.*, II, vi). And elsewhere he says also that the intellect is the "species of species" (*species specierum*), namely, the most abstract idea of all (being in general) (*De Anima*, III), always crediting the *Acting Intellect* with being the ultimate cognition; on which account he will have it to be acquired from without. Abelard observes that Aristotle confounded the *intellect* with its *object*, and speaks of a class of philosophers in

this day who followed the very opinion which he refutes. After making the excellent distinction (and such a distinction made in the twelfth century seems to me noteworthy): "Sicut autem SENSUS non est RES SENTITA in quam dirigitur, sic nec INTELLECTUS FORMA est REI quam concipit; sed intellectus ACTIO quædam est animæ, unde intelligens dicitur; forma vero in quam dirigitur, res imaginaria est et ficta." (here we have a touch of Sensism combined with Nominalism, for the two always go together), "quam scilicet, quando vult et qualem vult, animus conficit," he adds: "Quidam tamen EAM" (the form of the thing, the idea, or, according to Abelard, the image) "idem QUOD INTELLECTUM VOCANT; ut fabricam turris quam, absente turre, concipio, et altam et quadratam in spatio campo" (by imagining) "contemplor, idem intellectum turris appellat." Then he subjoins that Aristotle was of the same opinion as this class of philosophers: "Quibus Aristoteles assentire videtur, qui PASSIONES ANIMÆ, QUAS INTELLECTUM VOCAT, RERUM SIMILITUDINES in *Perihermeneias* APPELLAT" (See the above mentioned book of Porphyry *On the Five Voices*).

ceived from the *data* of sense. But the soul itself is not separable from the body.

204. According to this doctrine, the soul is not body; yet it is the act of a body, a thing belonging to the body, not divisible from it, existing entire, potentially, in that *spirit* which Aristotle affirms to be contained in the male *semen*, and to be developed from it according to circumstances and in proportion to the degree of perfection in the organization of the body. Even the fact of its developing up to the point in which intelligence and the intellect in act appears in it is due to the body being specially fitted for the purpose, or, as he expresses it, *more divine*. He calls the soul *form*, but he does not mean that it is really distinguished from the body. He calls it *substance*, but by substance he understands the last perfecting act of a given matter, an act which could not exist by itself, without the matter of which it is the perfection or entelechy.* The

* Cicero expounded the opinion of Aristotle on the nature of the soul thus: "Aristoteles . . . cum quatuor nota illa genera principiorum esset complexus, e quibus omnia orirentur, quintam quandam naturam censet esse, e qua sit mens. Cogitare enim et providere et discernere et docere et invenire aliquid et tam multa alia meminisse, amare, odisse, cupere, timere, angi, latari, hæc et similia eorum in horum quatuor generum nullo inesse putat, quintum genus adhibet, vacans nomine, et sic ipsum animum *entelechia* appellat novo nomine, quasi continuatam motionem et perennem" (*Tusc.* I, x). This fifth essence is caloric, or the vital principle, which, according to Aristotle, is in the male *semen*, and in which is nature or an active principle tending to develop itself. But, as we have seen, this fifth element, so long as it has not made some move towards development, is not called soul, except potentially (*virtute est anima*). The steps by which it develops itself are, 1st vegetation, 2nd feeling, 3rd intelligence. Thus it becomes in succession, first, a vegetative soul, the sensitive and intellective souls remaining in it only potentially; then a sensitive soul, the intellective soul remaining in it only potentially; lastly, intellective soul, to which there accrues

from without the mind, viz., the intellect in act, or acting intellect, in other words, the *One*. From this it appears that Cicero, by attributing to the mind all the operations which he enumerated, did not correctly describe the opinion of Aristotle. Lambinus observed also that Cicero gave a wrong interpretation of the Aristotelian *entelechia* by taking it as meaning a continual motion, whereas he should have taken it as meaning *force*, a cause of motion. Davisius, on the other hand, finds fault with Lambinus because by his criticism he seems to imply that the soul consists of motion, whereas Aristotle denies all motion to the soul, as St. Justin the Martyr certifies (*Cohort. ad Græcos*), and also Macrobius, who says: "Aristoteles vero adeo non acquiescit, ut animam non solum ex se non moveri, sed ne moveri quidem penitus conetur asserere" (*In Somn. Scip.*, II, xv). Hence Davisius contends that *entelechia* simply means *form*; and in proof of this he quotes the testimony of Aeneas Gazæus (*In Theophrast.*), of Nemesius (*De N. H.*, and *De Anima*, c. 1), and of Chalceides (*In Tim. Plat.*). But these two learned writers may be easily reconciled by considering that *form* is itself a force or energy; and it seems to me that Plutarch unites the two signifi-

error of Aristotle regarding the nature of the soul, therefore, consists "in having derived the *common* from real things (from the sense which perceives them, and from the soul endowed with the capacity for receiving it). He did not see that the *common* came from a far higher source; that it was essentially *idea*, and could not be confounded with *reality*; that every *common* was ultimately reducible to the *ens communissimum*, to *ideal being* which the soul intues by nature, and which is the *objective form* of the soul itself." Hence this "Master of the School" makes Natural Philosophy terminate in the soul. The soul, he says, "*est ultima formarum naturalium ad quam terminatur consideratio Philosophiæ Naturalis.*"* But he makes a great mistake. In truth, the last of the forms naturally known to us must be sought far beyond the soul; for it is IDEAL BEING, essentially OBJECT, immensely superior to the soul, and that which constitutes the natural link joining man with his Divine Principle. Thus the Philosopher, to avoid the error of Plato, who endowed ideas with subsistence, fell unfortunately into the contrary extreme by confounding them with contingent realities, with matter and with the soul. Through fear lest he should imitate the flight of Icarus, he went and buried himself in the earth, and closed up the only passage by which it is possible for man securely to ascend to the heavenly regions.

cations of the Aristotelian *εντελεχία* into one where he writes: "Aristoteles (animam esse dixit) entelechiam primum corporis, physici, organici, potentia vitam habentis: entelechia vero pro energia (seu vi) sumenda est" (*De Placit. Philosophorum*, c. 11). Corsini,

who interprets *actum, perfectionemque*, likewise hits the mark, because the *form* of a thing is, all at once, act, perfection, force.

* Physic. II.—St. Thomas, S. I, q. 76, 1 ad 3.

CONCLUSION.

205. Such, my dearest Giuseppe, are the principal opinions of antiquity touching the nature of the human soul. I have done my best to give you a faithful picture of them taken from the very words of their Authors, or from the most authoritative among the writers who have handed them down to us. Whether I have succeeded is a question I very willingly leave you to decide. I did not content myself with merely reproducing in its materiality the ancient language in which these systems were originally expressed ; I endeavoured to go deeper, in order to discover their inner spirit, and form a just appreciation of it ; although this was often a task of extreme difficulty. I have also ventured to submit them to the test of criticism ; not, however, imitating those who, while they are very ready to scrutinize and condemn the enunciations of others, have nothing of their own to offer as a substitute. For I have never thought it a right thing to destroy without at the same time seeking to build up ; and, indeed, I cannot conceive how a man with any sense of propriety can presume to stand up as the censor of the performances of others when he has done nothing himself. Having, therefore, submitted to the public four books of my own on the nature of the soul, I hoped I had acquired some right to send you this, in which the opinions of other thinkers, diligently collected, are compared and confronted with mine.

What vigils, what labours, what meditations have those opinions cost some of the loftiest and noblest minds that the world has produced ! And yet, although they all sought during many ages for the same thing, they failed

to ensure agreement, as if, while truth unites men, it were the fate of science to divide them. The Moderns, in their turn, fell into more or less the same opinions, and were likewise divided into various schools. Not a single one have I been able to find among them, who produced a theory that was either new or better than those I have referred to. Only, the age of our Fathers took a deep dislike to the whole question, and for more than a century went so far as altogether to shun the investigation of the nature of things, declaring that nature impenetrable and pitying the rude simplicity of the Ancients who took so much pains in trying to fathom it. More cultured, of course, than those Ancients were, when it came to speak of the soul, rigidly abstaining from any allusion to her nature, it contented itself with describing, and that very superficially, those of her operations which could be perceived by the senses. Thus, if the generous efforts of ancient Philosophy did not always and in all respects succeed in gaining possession of the truth, they at least remained as an everlasting monument of the supreme ardour with which the early sages attempted to define the nature, the character, the condition of this spirit which vivifies us, ennobles us, and raises us up even to the throne of God, but which the whole of the 18th century, full as it was of philosophers, made it a glory to ignore. At once most docile and most haughty, that century obeyed and slavishly bowed down to the word of John Locke, and its other masters and leaders, who persuaded themselves that they were able to make wisdom easy by disburdening it—like a ship laden with precious treasures in danger of sinking—of whatever it contained of difficult, rare and sublime, throwing away the cargo, accumulated by ages, into the surging masses of sensualism and frenzied passion.

Observing, however, that in our day some were seeking to recover the lost riches, I desired, as in other books, so in this also, to join with them in that meritorious labour. If so much of the recovered freight as we see exhibited to

the attention of the public is not all pure gold (as the test to which I myself have been putting it shows this clearly enough), you must remember that in the traffic of philosophy discovered truth is not the only valuable commodity. All the studies pursued, all the mental exertions made with the intent of discovering it, are also of great value. Indeed, the mere bringing of capital questions to the front, the meditations tending to their solution, the very blunders committed, are productive of good, an improvement and an increase of wealth in the philosophical market.

But you will ask: How is it that the human mind has so wandered from the truth that the narrative of its thoughts seems to be rather a narrative of its errors?—You will have no difficulty in understanding this fact, which is constantly recurring in the annals of philosophy, if you consider that although the mind of man with its direct acts invariably apprehends the truth (and thus the truth is received and lodged, as in a secure repository, in the inmost part of the soul); nevertheless, when *reflection* comes in and wishes to turn to that truth which certainly stands before it, its vision is often clouded, so that it exchanges the truth for something else. This, unfortunately, arises from the continual mobility of the imagination which, instead of being as it ought to be, guided and kept under control by reflection, guides it by its phantasms dependently on animal laws. Hence, reflection seems, very frequently, not unlike a blind master led by the hand of a capricious and untrustworthy servant. Thus it comes to pass that reflection—by which Philosophy is produced—when wishing to look at the soul in order to know what it is, its nature, its condition, supposes itself to see the soul, when in reality it sees quite another thing, that is to say, it sees now *matter*, now *corporeal feeling*, now the *Idea*, now *God*, and hence says to itself that these things are the soul. Indeed, it was in this way that there came to be the first four classes of systems on the nature of the soul, all of them erroneous, which I have expounded to you, and which may be designated as the systems of the Materialists, the

Sensists, the false Objectivists, and the Theopists. As to the fifth system, that of Aristotle, it avoids in part, as have shown, the errors of the previous ones, because its Author clearly perceived that the soul could not be any of the four things just named, since they are only terms of its operation. When, however, the Philosopher undertakes to explain the intellect, he himself falls into a system of *Subjectivism* opposed to the first four, and principally to that of the false Objectivists. For, while these aimed at elevating the soul by attributing to it the divine qualities belonging to ideas, he degrades ideas from their sublime condition by reducing them to the level of the soul itself and of subjective things. True, he does not say this expressly, but it follows necessarily from his system, in which the *One* or the *Common* is unhesitatingly conceded to real and subjective things; hence for him the objective or ideal is nothing more than an appurtenance of the subjective or real itself. I say "subjective or real," because when we carefully reason the matter out, we find that the real is reduced to the subject.

I have done. You have now before you what I had to say on the nature of the soul, and what others have thought. By comparing the two sides together freely and with the intelligence which I know you to possess, you will be able to judge which of them is preferable, and whether I have been fortunate enough, by my humble endeavours, to contribute anything to the advancement of philosophic truth, which can never make a step forward without a distinct gain to the cause of Wisdom and of Religion.

THE END.

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HAVE BEEN COMPILED BY

DON SEVERINO FRATI,

Canon and Provost of the Cathedral Church of Parma.

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substance to *first matter*, 790—but is wrong in placing in matter the principle of individuation, since this principle consists only in subsistent *reality*, 810.

With regard to the soul he distinguishes two classes of things. "Some things," he says, "seem to be passions proper to the soul itself, and some to be inherent in animality for the sake of the soul," 1194 *n*.

He knew that the *continuous* in space, time and motion cannot result from an aggregate of indivisibles, 1212 *n*—and in the VI book of the *Physics* he quotes Zeno's four celebrated arguments on this subject, *ibid*.—From a passage in his first book of the *Metaphysics* one can see what was the logical origin of the Pantheism of the Eleatic School, 1228 *n*.

He says that rest is more natural to the soul than motion, 1231—distinguishes four kinds of motion, *ibid*, *n*—and teaches that all actions are done through motion, *ibid*, *n*.—His arguments for proving that the soul does not move of its own nature, *ibid*, *n*—and how he accounts for the fact of other philosophers not agreeing with him on this point, 1232.—He notes how Democritus, while attributing motion to the soul, forgets to distinguish between the *powers* of the soul, which are subject to motion, and the *soul itself*, which is not, *ibid*.—Nevertheless, he erroneously attributes to the soul motion *per accidens*, *ibid*, *n*.—He failed to grasp a correct and genuine concept of the human spirit, *ibid*, *n*.—He did not distinguish, in the human individual, the *principle* from the *term*, *ibid*, *n*—nor see that all motion springs from the term, and not from the principle, *ibid*, *n*.—A remark of Aureolus on his taking the fact of motion as a proof of God's existence, *ibid*, *n*.

He says that the soul is act (the act of the living body), but he is obliged to admit that this act is in potentiality with reference to other acts, which are transient, 1232.—How he came to admit in the soul that kind of motion which he calls *per accidens*, 1243.

He affirms that Anaxagoras was the only philosopher who had said that the intellect is indivisible, and

has nothing in common with material things, 1282 and *n*—but had omitted to say how and from what cause the intellect knows, 1282.—He himself, however, could not give a satisfactory answer to these questions because he applied to the spirit ontological principles that were too narrow, 1283.—He concedes to Anaxagoras that there is an unmixed and immaterial intellect; but this, he adds, is *knowledge* itself in act, antecedently to which there is in the soul a kind of *matter* of all cognitions, *ibid.*—This opinion is examined by the Author, 1284–1292.—Aristotle supposes that all things in nature without any exception are composed of form and matter, but gives no proof of this, 1284.—By saying that the *possible intellect* becomes all things, that is, all cognitions, he renders all cognitions subjective, 1285—and if, with Michele Soffiano, we take him to mean that the intellect, by *knowing in act*, becomes the *things themselves* which it knows, then we must charge him with the Panpsychism held by many philosophers in modern times, 1286.—By his *possible intellect*, he assigns to our cognitions their material cause; but his *acting intellect* gives no adequate explanation either of their efficient or of their instrumental cause, 1287.—He confounds the eye with the light which causes it to see, the *subject* with the *object*, 1288.—His error in thinking that he could, by his theory, vanquish the difficulty he was urging against Anaxagoras, who considered the human intellect to be free from all mixture, 1289.—He describes the intellective soul as composed of matter and form, and makes of each of these elements a substantial part of the soul itself, 1290.—According to him, the intellective soul results from a form like that of real beings, a form which is itself a *real*, the act of reality, 1291.—He credits the intellective soul with something corresponding with the matter of bodies; hence he says that this soul becomes all things, 1292.

In many places he gives us to understand that *being*, considered *per se*, is the first thing understood, 1334.—He did not know the doctrine about *imperfect beings*, 1336—nevertheless

he caught some glimpse of it, *ibid.* *n*.—He noticed a special case of the law of the *synthesis* of beings, 1338 *n*.—He says that the *continuous* is held together by a continued series of parts, and can therefore be divided *ad infinitum*, 1361 *n*.—He refuted Zeno's arguments against the existence of motion, without at the same time perceiving that those arguments did not tell against the existence, but only against the *continuity* of motion, 1365.—He attributes to Thales and, after him, to Diogenes, Heraclitus and Alcmaeon, the opinion that "Life and intelligence lie in continuous motion," 1365.—He misjudged the teaching of Parmenides about being, 1368 *n*.—What he thought of the doctrine of Xenophanes, Parmenides and Melissus respecting the *One*, *ibid.*—He did not see the necessity of excluding the continuous and the continuously changing; neither was he right in finding fault with Parmenides for having said that *being* is continuous, 1368 *n*.—He maintains that the error of the Eleatics in maintaining the absolute *oneness* of being arose from their having considered only that which is being *per se* (and this is *one*), and not having distinguished between *being simply such*, and *potential being*, 1371 *n*.—but his argument sins by a vicious circle, and could not overthrow the arguments of the Eleatics, *ibid.*—He usually takes to the strict letter the expressions of the Philosophers who preceded him, as for example, the words *finite* and *infinite* used by Parmenides and Melissus, 1374 *n*.

The faculty called by him *common sensory*, is examined, 1464, 1465.—He distinguished being into *being simply as such*, and *being according to virtue*; also into *being in act* and *potential being*, 1609.—This distinction was suggested to him by experience, 1613.

According to him, matter, by itself a formless being, can be informed and individualized, 1637.—Nay, the whole doctrine of the Aristotelian forms is derived from the forms with which matter was considered to be clothed, 1637.—The Author believes that, by having recourse to the unity of the acting subject, he has explained all those

facts of the spirit which Aristotle attributed to his pretended *common sensory*, 1736.

Other places in which Aristotle is mentioned or quoted:—54, 114, 225 *n*, 517 *n*, 622 *n*, 656, 669 *n*, 810 *n*, 860 *n*, 1226 *n*, 1228 *n*, 1233, 1335, 1371, 1475, 1608, 1617.

Appendix. Aristotle says that very many of the earliest philosophers considered as the sole cause of all things those principles which fall within the sphere of matter, 10 *n*.—His conjectures on the opinion of Thales, who placed the principle of all things in the element of water, 11.—He places Hippo in the class of vulgar Philosophers, 12—says that in the Orphic verses man is described as drawing his soul from the universe by respiration, 13—and gives the reason of this opinion, 14.—He attributes to Heraclitus the opinion that the soul is made of vapour, 16 *n*—pretends to assign the origin of the opinion which placed the nature of the soul in fire, 18—and seeks to reduce all the ancient systems about the soul to three kinds only, *ibid.*

According to him, philosophers have constituted into a soul all the material elements, except the earth which none affirmed to be a soul, save those who looked upon the soul as a compound of all the elements together, 20, 22 *n*.

He shows himself uncertain about the meaning to be given to the *numbers* of Pythagoras, 33. 40 *n*—says, that inasmuch as numbers are what may be considered the most abstract element in beings, therefore the Pythagoreans reputed them to be the *first things*,—and thus changed the elements of numbers into the elements of all beings, *ibid.*—He represents Plato as having added *ideas* to *numbers*, 40—and seems to maintain that the Pythagoreans did not apply the theory of numbers except to mathematical bodies and to sensible things, 40 *n*.

What difference he assigns between Empedocles, on the one hand, and the Pythagoreans and Plato on the other, 50.—The difficulty and ambiguity he finds in the saying of the Pythagoreans and of Plato, that, “the one and being constitute the essence of things,” 50 and *n*.—He affirms that

according to Empedocles the elements are by nature anterior to the Gods, 54—declares that the doctrine of Empedocles about the formation of the human soul is similar to that of Plato, 55, 57—and unequivocally affirms that Empedocles placed the essence of things in ideas, 62.—According to him, the *friendship* spoken of by the philosopher of Agrigentum corresponds to the *unity* of Pythagoras and Parmenides, while the *strife* corresponds to *plurality*, 64 and *n*.—He charges Empedocles with self-contradiction, 67—says that Pythagoras, and Alcmaeon his disciple, seem to place number in the genus of matter, *ibid.*—cavils about the *friendship* taught by Empedocles, 69 and *n*—and passes an ill-founded censure on this philosopher on account of his designating *strife* sometimes as the principle of destruction, and sometimes as the producer of material things, 73.—Another ill-founded censure of his on Empedocles, 74 and *n*.—He maintains that the theory of Empedocles fails to explain the generation of things, 77—that this philosopher places all the other elements in opposition to that of fire, 77 *n*—and that he afterwards contradicts himself by admitting all the four elements as equal, *ibid.*—and that he denies *καὶ τοῦ πυρὸς εἶναι στοιχείον*, 78.—He affirms that Anaxagoras and Empedocles attributed sense and intelligence even to plants, 80 *n*—and misrepresents Plato by attributing to him the opinion that the soul is composed of the four elements, *ibid.*—He asserts that Empedocles invariably called the eternal and immutable world by the name of Θεός, 86.

He falsely accuses Plato of having endorsed Democritus's materialistic view of the manner in which the soul moves the body, 97, 100—and of having based his theory of the soul on the supposition that the soul moves, 105—charges him unfairly with explaining the movements of the soul in the same way as Democritus, 106—assails him for having described the soul as continually revolving on itself, and as composed, so to speak, of various spheres, 116—and misrepresents the kind of motion which his master had conceded

to the soul, 117, 118.—He is, however, right in his strictures upon the absurd way in which Democritus, and Philip the Comical, pretended that the soul moves the body, 119.—In what sense it is true that "Intellection is similar to rest and to a certain kind of state rather than to motion," *ibid.*

His system has two sides: it is *transcendental idealism*, and it is *subjectivism*, 173.—He says that "The soul in a certain way becomes all things," and that "The intellect is those things which it understands," 174.—and that the acting intellect "is always in act," 174 n.—He depreciates ideas, 175.—His peremptoriness of tone in censuring all the philosophers who preceded him, 176.—The Author is inclined to think that Aristotle's works have been tampered with to a much greater extent than is commonly supposed, 177.—Aristotle is a Subjectivist, 178.—He defines the soul as "The first completing act (*ἐντελεχεία*) of a natural body which virtually has life," 178.—Explanation of this definition, *ibid.* and n.—He says that the *natural bodies*, are the principles of other bodies, *ibid.* n.—In his philosophy it is impossible to conceive the soul as separated from the body, 178.—His calling the *form* of things by the name of *substance* gave rise to a school of Realists, *ibid.* n.—He declares that the soul is a substance, not in the sense that it is the subject, but in the sense that it is act and perfection of the subject, *ibid.* n.—He feels embarrassed when applying his doctrine to the intellective soul, 179.—makes the faculty of *opining* distinct from the intellective faculty, *ibid.* n.—and says that the intellect is separable only as the *eternal* is separable from the *corruptible*, 179.—The Author tries to make out the meaning of this, 180.

How Aristotle explains generation, 181.—He considers that the *sense*, taken by itself, is not a soul, but only a part of the soul, 181 n.—He says that ideas and universals are derived from the external world, 182.—and that we have no innate knowledge of them; because if we had, we would be conscious of the fact, *ibid.*—His definition

of the human intelligence involves a manifest contradiction, *ibid.* n.—In one place he speaks of "a *universal quiescent* in the soul," 183—but it is doubtful whether this saves him from Sensism, *ibid.*—His most acute commentators, as for instance St. Thomas, consider this *quiescent universal* to be wholly out of harmony with the Aristotelian system and introduced into it, so to speak, by stealth, 184.—He attributed to the reals themselves the cognitive element, namely the *one*, which belongs only to ideas, 186.—A brief summary of his analysis on human cognitions, 188, 189, 203.—According to him, the things first known are *being* and the *one*, 188.—He says that "The means which leads us to know things from those which are most known, is innate in us," 188 n.—To account for our knowledge of *being* and of the *one*, he has recourse to two causes, *i.e.*, to sense and to the special nature of the soul, 189.—In the first book of his Posterior Analytics he lays it down that the knowledge of particulars precedes in us that of universals; on the contrary, in the first book of the Physics he says that although the universals, considered in their nature, are posterior, they are anterior relatively to us, 189 n.—He allows of three kinds of cognition: 1st the sensible; 2nd that of the most general things, and 3rd that of things less general, *ibid.*—He attributes to the *pure real* what belongs to the *real already conceived* by the mind, 189, 191–194.—For him, the *one in the many* is the principle of *being*, and the *one outside the many* is the principle of knowledge, 191.—His error in attributing to the pure real what belongs to the real already conceived by the mind was never noticed by any one, 192.—He gives occasion to *Realism*, *ibid.*—and also to *Nominalism*, 201.—Epilogue of his theory about the soul, 203 and n.—He says that the intellect is "The species of species," *i.e.*, the most abstract of all ideas (being taken universally), 203 n.—His theory on the nature of the soul is expounded by Cicero, but not correctly, 204 n.—His error about the nature of the soul consists in having derived the *common* from real things (from

the sense that perceives them, and from the soul which is capable of receiving the *common*), instead of soaring up with his mind to see that the *common* is essentially *idea*, and cannot be confounded with reality, 204.—Hence he declared that the soul is "the last of all natural forms," *ibid.*

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Other places in the *Appendix*, where he is named or quoted: 11, 11 *n.*, 18, 25 *n.*, 29, 62 *n.*, 65, 65 *n.*, 66, 68, 89 *n.*, 95 *n.*, 113, 119 *n.*, 187, 200 *n.*, 205 *n.*

ARISTOXENUS, of Tarantum (IV Century B.C.). *Appendix*. He placed the soul in a harmony, which seems to have been that of the bodily organs and senses, 23.—Subsequently, as Lactantius tells us, he denied that the soul was anything, 24.—Mentioned also at 30.

ASCLEPIADES (IV Century B.C.). *Appendix*. He defines the soul as: "The exercise of the five senses, accordant with itself," 30.

ATHANASIUS (St.) (296–373). He uses the spontaneity of motion as a proof of the immortality of the soul, 611 *n.*—A passage is quoted from him regarding the origin of the human soul, 659—and another regarding its immortality, 726.

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ATHENAGORAS (II Century). A confirmation of his *Dictum*: "Soul does not generate soul, but man generates man," 659.

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Author professes to follow St. Augustine as one of his two principal masters, 117.—St. Augustine remarks that it is one thing for the soul to *know* itself, and another thing to *think* of itself, 118 and *n.*—says that error has no place in the intellectual *perception*, but only in the work of *reflection*, *ibid.*—and that certainty is a characteristic of perception, 119.—An argument which annihilates Materialism, 119 *n.*—He gives the sign whereby to know what does not come from perception, 120 and *n.*—He gives a most cogent proof of the immortality of the soul, 139 *n.*—and is of opinion that every motion of the soul has some effect on the body, 310 *n.*—From the fact that the soul is found in every part of the body, he infers its simplicity, 448.—He defends the simplicity of the soul against Evodius, 458—and infers it also from the fact of feeling, 465 *n.*

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He is also mentioned or quoted at 457, 684.

AUREOLUS (Peter) (.....–1345). He, in union with others, observes, that if we are to assume with Aristotle that the soul moves other things without being itself in motion, the argument deduced from the necessity of a *primum immobile* does not, strictly speaking, prove the existence of God, but proves only the existence of a world-soul, 1232 *n.*—Cardinal Gaetano agrees with him, *ibid.*

AVERROES (1120–1198). He seems to have had some inkling of the same

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He tells us that he saw a beheaded man walk, and that Avicenna had seen a bull in the same condition move two steps, 457.

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B.

BAGLIVI (Giorgio) (1669–1707). His attempts to explain the wonderful mechanism of the animal, 1873.—He relates the case of a woman who had complained of sharp pains in one of the kidneys, which, however, on a *post mortem* examination was found to be perfectly sound while the other kidney had a calculus in it, 2222.

BALDINOTTI (Cesare). Why he and others take the word *Metaphysics* as synonymous with *Ontology*, *pref.* 18.—He is not accurate in assigning the determinations of matter, or the conditions upon which it can have the act of subsistence, 791 n.

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BARBIER (Jean Baptiste) (1780–1865). He maintains that the secret of the transmission of the healing power belonging to various substances must be sought in the cerebral apparatus, 1916.

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- BERNARD (St.) (1091-1153). He teaches that the soul grows and expands spiritually, not in its substance, but in power, 692 *n*.
- BERRUTI (Secondo) (1796-1870). In a letter to Professor Medici he defends the spontaneous generation of insects, 491 *n*.—A passage from this letter regarding the successive formation of the animal, 590—another passage on the reproduction of some parts that had been amputated, or destroyed by disease, 591—a third passage relating to the movements of organic globules, 592.—He denies that zoosperms are animals, and attributes to them no other qualities than those of *organic molecules*, 600 *n*—and says that they are necessary for generation, 600.
- BESSARION (Cardinal) (1395-1472). A passage of Parmenides translated by him, 1365 *n*.—He says: "Aristotle represented as said of sensible things what the Pythagoreans had said of numbers and of intelligible substances," 1368 *n*.
- BIANCHINI (Giuseppe) (1704-1760). He says very wisely: "We may affirm, that the two globes, the celestial and terrestrial, are the most ancient books of profane literature," 1526.
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- BIRAN (François, Maine de) (1776-1824). He pretended to derive the classification of the powers of the human soul from *reflection* alone, 1025 *n*.
- BLAINVILLE (Henry M. de) (1778-1850). He is one of those Naturalists who admit spontaneous generation, 491.
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- BORDEU (Théophile) (1773-1858). Cited at 1863.
- BORELLI (Giovanni Alfonso) (1608-1679). He was the first of modern Animists to perceive that the animal phenomenon must be explained by means of a principle of subjective activity, 400.—He attempts to prove the possibility of the motion of the heart being produced by the *cognitive* animal faculty, but his arguments only demonstrate that motion is caused by the activity of the sensitive principle, 401.—He observes, that when the principle of feeling is powerfully affected by the feeling of joy, the circulation of the blood is quicker; and that it is slower when that principle is affected by the feeling of sadness, *ibid*.—Then he erroneously infers from this, that the cognitive soul is the principle of the movements of the heart, *ibid*.—He confounds *feeling* with *knowing*, 401, 402.—The cause of this mistake

- seems to have been his considering the effect of the passions in man instead of considering it in animals, 404.—He tells us of a case in which, on bleeding a patient, he found that the blood was quite cold, and yet not coagulated, 586.—His description of animal life, 1863.—Mentioned also at 399.
- BOSCOVICH (Roger Joseph) (1711-1787). Reference is made to his *simple points*, 535 *n*.—The Author does not admit them, although, as a hypothesis, they may, to a certain extent, be submitted to calculation, 1833 *n*.
- BOSSUET (Jacques Bénigne, Bishop of Meaux) (1627-1704). His opinion about the universal animation of matter, 521.
- BOTTO (Professor I. D.) (1791-1865). He made special observations on the movements of the animal and vegetable globules suspended in various liquids, which movements do not seem to be explainable by having recourse solely to mechanical, physical, or chemical laws, 592.
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- BOYLE (Robert) (1626-1691). Allusion to his book against *absolute rest*, 1367.
- BRACHET (Jean Louis) (1789-1858). He refutes the opinion of those who attribute *sympathies* to the cellular system because it is diffused through the whole of our body, 1914.—He divides *sympathies* into cerebral, ganglionic, and mixed, *ibid*.—Probably his classification of sympathies should be restricted to the *cerebral* and the *mixed*, 1915.—He relates the case of an infirmarian who one morning had his power of sight increased to an extraordinary degree, and in a few hours suddenly fell dead of apoplexy, 2092.
- BRECHET (Gilbert) (1784-1845). His opinion about the movement which follows the irritation produced in the throat in order to excite vomit, 1893 *n*.
- BREMSE (John George) (1767-1827). He is one of those Naturalists who believe in spontaneous generation, 491.
- BRERA (Valeriano Luigi) (1772-1840). Mentioned at 1793 *n*.
- BROWN (John) (1735-1788). He derives the concept of *excitability* from the effects produced by the different *stimuli* on the living body, 1815—and then maintains that excitability is one and indivisible in the whole of the animal organism, *ibid*.—He confounds three kinds of effects which are widely different: 1st mechanical movement; 2nd animal feeling; 3rd thought, *ibid*.—What relation his *excitability* has to the diverse activities attributed by the Author to the vital principle, 1816-1819.—He pretends to prove that all the animal phenomena depend on excitability, 1880—but is contradicted by Guani and Buffalini, *ibid*. *n*.—Narrowness of his system, 1972.—He makes life dependent on *passivity*, and draws from this principle his celebrated canon: "The excitability of the fibre is exhausted by the action of the exciting stimuli," 1983.—His School acknowledges that symptoms are fallacious when one pretends to infer from them the sthenic or asthenic condition of the body, 2110.—He was severely criticized by many for having insisted on prescribing the use of stimulants as a remedy for cases of inflammation, 2116.—Mentioned also at 1817-1819.
- BROUGHAM (Lord) (1779-1868). He is one of those philosophers who, since the time of Condillac, have been more and more aware of the fact that a great many judgments mix themselves up with our sensations without our adverting to them, 32.
- BROUSSAIS (François Joseph) (1772-1838). His opinion regarding *morbid sympathies*, 1912.—He threw great light on the functions of the ganglionic system, and never excluded the cerebral one, 1915 *n*.—An excellent pathological discovery made by him, 1924.—His beautiful description of the manifold sensations that accompany hunger and nutrition, 1926 *n*.—According to him, the large evacuations known under the name of *crises* are merely the effect of the ceasing of the irritation of the viscera, 2188.—He observed, that gastric irritation precedes and accompanies most cutaneous inflammations, 2190 *n*.—Mentioned at 494.
- BRUCKER (T. T.) (1696-1770). *Appendix*. He attributes the vulgar kind of Materialism to Strato, 19 *n*.—and affirms that Empedocles believed in a world-soul, 80 *n*.—Reference

- to his doubt as to whether the belief in the existence of two worlds, attributed to Empedocles, be an invention of Neo-Platonism 87 *n*.—He recognizes that certain doctrines of Empedocles savour of Pythagoreanism, and are irreconcilable with that of a soul formed of material elements, 90.—Hence he conjectures that Empedocles believed in the existence of two souls, the one divine, intelligent, born of the world-soul, and the other sensitive and composed of elements, *ibid*.—Other places in which he is mentioned, 19 *n*, 82 *n*.
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- CUDWORTH (Rodolph) (1617-1688). His *plastic forms*, 473.—He is cited in corroboration of the opinion that all matter is animated, an opinion by means of which all natural phenomena are explained easily and without falling into absurdities, 822.
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- CULLERIER (1751-1827). In studying the case of a man who was constantly troubled with a disagreeable smell, he found that his arachnoid had been ossified in several places, and that there were suppurated cysts in the middle of the cerebral hemisphere, 2082 *n*.
- CUVIER (George) (1769-1832). He discovers many species of animals that had been entirely lost, 499—and describes life as a continual vortex which, in its movement, is always absorbing fresh particles and expelling others, 1863.

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- DAMASCENUS (St. John) (676-754). Quoted in confirmation of the constant belief of Ecclesiastical writers that man's organic life also must be attributed to the soul, 229 *n*.
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- DEGERANDO (Joseph) (1772-1842). He says that the tactile sensations are the only sensations that accompany the feeling of ourselves, 94.
- DEHAIN.—He tells us that he found the blood differing in colour, heat, and density in the various parts of the body, 586.
- DE LA METTRIE (Julien) (1709-1751). He defended *spontaneous generation*, erroneously supposing that it favoured his materialism, 492.
- DE MAISTRE (Joseph, Count) (1753-1821). He gives an inaccurate rendering of the phrase *sanguinem animarum vestrarum* in Genesis, as also of other passages in Leviticus, 616 and *n*.—He is inclined to the error of admitting two different souls in man, 718.—He quotes Hippocrates and Cicero incorrectly, *ibid. n*.—His eloquent description of that mysterious something which occurs in a kiss and in the feelings produced by it, 992.
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- DENYS (John Baptist) (...-1704). He introduced the blood of a lamb into the veins of a human body, 2043 *n*.
- DESCARTES (René) (1596-1650). When he said, "*I think, therefore I exist*," he caught a glimpse of the truth, 289—but did not see it right out, and could not bring it into full light, *ibid*.—He partially saw that the subjective phenomena, and the extra-subjective, were specifically different, 427 *n*.—He erroneously placed the substance of bodies in extension, an error which St. Thomas had already refuted, 797 *n*.—Mentioned also at 473, 1748.
- DESTUTT-TRACY (Ant. Louis, Comte de) (1754-1836). His testimony in

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- DICEARCHIUS, of Messina (IV Century B.C.). *Appendix*. He thought that the soul consisted in the harmony of the four elements, 22.—According to Cicero, he also said that the soul "was nothing but an empty name," 24.—Mentioned at 30.
- DIDEROT (Denis) (1713-1784). He defended spontaneous generation, erroneously supposing that it would favour Materialism, 492 *n*.
- DIODEGENES, of Apollonia (V Century B.C.). He places the nature of the soul in air, 622.
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- DIODEGENES (Laërtius) (II Century). He adds Xenophanes to the school of Pythagoras, 1725 *n*. Mentioned at 428 *n*.
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- DIODEGENES, of Sinope, or the Cynic (IV Century B.C.). To Zeno, who impugned the existence of motion, he replied simply by moving, 729.—According to Aristotle, he supposed life and intelligence to consist in continuous motion, 1365.
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- DÖLLINGER (John Ignatius) 1770-1841). He observed, that in young animals, while their substance was in the act of being converted into blood, the movements of the blood-globules was oscillatory, 589.
- DUMAS (John Baptiste) (1800-1844). His experiments on zoosperms, 600 and *n*.
- DURANDUS (William) (. . . -1334). Quoted at 455 *n*.
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- EGIDIO (Colonna) (...-1316). Quoted at 455 *n*.
- EHRENSBERG (Christian) (1781-1876). He is against spontaneous generation, 1491 *n*—and thinks that diverse kinds of rocks, and especially the tripoli are composed of animal shells, 532.
- EMILIANI (Luigi). He appropriately gives the appellation of *reproducters* to a special kind of stimulants, to distinguish it from other kinds, 1817 *n*.
- EMMEREZ. He injected the blood of a lamb into a human body, 2043 *n*.
- EMPEDOCLES (IV Century B.C.). He attributed life to the material elements, and deified them, 517.—Some have supposed him to have taken from Homer the opinion that the blood was the soul itself, or that the soul resided in the blood, or originated from the blood, or that the blood was the first living thing, 617 and *n*.—He says that the soul is a mixture of two substances, an ethereal and an aerial one, 621.—He placed the seat of the soul in the heart, *ibid*.—and maintained that the soul was composed principally of fire, *ibid*.—The Author thinks that he derived many of his opinions from Heraclitus of Ephesus, 622.
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Clement of Alexandria ranked him among atheists, perhaps because he made God to be the soul of the world, *ibid*.—Sextus Empiricus, on the contrary, places him among those who Θεόν ἀπολείποντι, *ibid*.—He frequently said that his *elements* were Gods, 54—and gave them names proper to the Divinity, *ibid*.

According to Aristotle, his doctrine about the formation of the soul is similar to that of Plato, 55.—For him, the body is a kind of prison of the soul, 56.—He places the essence of things in ideas, 62.—He says that matter consists of the four elements, but that these elements themselves exist in virtue of their ideal essences, not by their own selves, *ibid.* n.—Philoponus also understood the elements of Empedocles as meaning their notions or ideas, 63.

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In what sense he says that *concord* is *quasi-matter*, 67.—By *concord*, or *friendship*, he meant the *One*, 67 and n.—Cavils of Aristotle about the Empedoclean concord or friendship, 69—which does not differ from the *One*, 70—and was called by names similar to those of the Pythagorean *One*, 72.—Other cavils of Aristotle about the Empedoclean *discord* or *strife*, 73.—Other ill-founded charges of the same against Empedocles's elements, 74.—There is nothing to forbid the belief that Empedocles reduces his elements to the *monad* of *necessity*, 75.—He reduces the four elements to one only, that of fire, 77—and admits an *intelligible* fire, 78.—Given that the elements of which he speaks are *intelligible* elements, the apparent contradictions with which he has been charged are at once reconciled, 79.—Why he said that the *sense* also was composed of elements, 80.—He posited two worlds, 81–87.—Analogy between his *elementary fire* and the *ethereal light* of the Indians, 82 n.—He seems not to have been ignorant of the theory of

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His *One* is not the *materia prima*, or matter separated from its forms, 86.—Theophrastus proves by his authority, that matter, by itself alone, cannot be the cause of anything, *ibid.* n.—Excellence of his *Sphaerus* (σφαῖρος) 87.—He defines God as "The sacred, ineffable mind which embraces the whole world by its providence," 88.—He changed into souls, gods, genii, demons, *ideas*, as also feelings, virtues and vices, 89.—We learn from Plutarch and others that he attributed to the soul a divine origin, 90—and it is not improbable that he distinguished man's reason itself, as Sextus Empiricus maintains, into *common* reason and *divine* reason, 90 and n.—According to many ancient authors, he admitted the Pythagorean Metempsychosis, and even that the soul passed into fruits, and into plants, 90 n.

He is also mentioned at 11, 25, 47, 49, 50 n, 51, 57, 59, 61, 62, 64 n, 68, 69 n, 70 n, 73 n, 75 n, 76, 76 n, 77 n, 78 n, 80 n, 82, 82 n, 83, 87 n, 89 n, 93, 95, 98, 100, 108, 113, 114.

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Appendix. His opinion on the nature of the Soul, 28.—He confounded the *subject* (the soul), with the *extrasubjective* (matter) 92–96.—Mentioned at 30, 55 n.

EUCLID (IV Century B.C.). Mentioned at 33, 1228.

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EUSTATHIUS (of Cappadocia) (IV Century.) *Appendix.* He certifies that Pherecydes had access to certain mysterious books of the Phœnicians, 11.—Mentioned at 87 n.

EZERMAK.—He maintains that there are as many species of zoosperms as there are species of animals possessed of prolific fluid, 600 n.

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FABRICIUS (John Albert) (1668–1736). Cited at 1368 n.

- FANZAGO (Francesco) (1764-1836). The fact of morbid localities, illustrated by him and by other eminent Physicians, cannot be explained by means of Brown's "excitability" alone, 1818.
- FATNER.—He found that persons who had never experienced the sensation of smell, were without olfactory nerves, 2083.
- FAZELLO (Tommaso) (1498-1570). *Appendix*. He thinks that Empedocles had been a hearer of Parmenides and of Anaxagoras, 83 n.
- FELLER (Abbé François Xavier) (1735-1802). He refutes Buffon, who had attributed an *Ego* to the brutes, 67 n.—A passage in which he speaks of a kind of neutral substance ministering, as it were, to universal animation, 521.
- FERNEL (Jean) (1485-1558). His exposition of the various systems invented by Materialists for explaining the union of the soul with the body, 428 and n.—He says that heat is the cause of life and feeling, 1930 n.—Quoted at 428.
- FERRIER (Antoine) (1693-1769). He observed that persons suffering from bilious attacks often experience a spasm which prevents their being able to swallow until they have vomited some of the obnoxious fluid, or else have been relieved of the wind in the stomach, 2188 n.
- FESTLER (Francis Xavier) (1801- . .). He attributes to white capillary vessels a greater contractile force than to red ones, 2114.
- FESTUS (S. P.) (III Century). Explaining the injunction of the Twelve Tables, *Mulieres genas ne radunto*, he says: *Radere in hoc loco significat "unguibus cruentare,"* 1577 n.
- FICHTE (John Theophilus) (1762-1814). He reduced the soul to consciousness, and thus converted it into a function of reflection, 72 n.—Instead of saying that "the *Ego* posits itself," he ought to have said that "the soul posits the *Ego*," 73.—The Author maintains that the only way to get out of the vicious circle in which Fichte lost himself is by means of the system proposed by him, 79 n.—Fichte did not catch the distinction between the reflex *Ego* of the philosopher, and the *Ego* as first formed by each individual, 80.

According to the Author, Fichte's Idealism is Sensism, 1507.—Fichte teaches that the human spirit posits itself by the same act by which it posits the external world, 1507—and that it simultaneously affirms the *Ego* and the *non-Ego* as correlative opposites, the one of which, by limiting the other, distinguishes it, *ibid.*—His expression of *Ego* and *non-Ego* is wrongly applied to signify the duality which exists in our feeling, *ibid.*—By representing the *Ego* as the correlative opposite to Nature, *i.e.*, to the external world, he made the first step toward the philosophical deification of man, 1537 n.—He is mentioned at 273 n.

Appendix.—Fichte's system, 136-150.—He admitted the original Kantian sophism "That the soul cannot know anything except itself," but ignored the possibility (which Kant had left as an open question) of the existence of beings other than the soul, 136.—Kant had described the *power* which the spirit has of producing objects to itself; but Fichte considered the *act* of this power, and the objects themselves as already produced by it, *ibid.*—The *Ego*, which Kant had posited as the *connecting link* of all representations, and which Reinhold took as synonymous with *consciousness*, became for Fichte the *primal act* of all the knowable and of all things, *ibid.*—He maintains, that the *Ego* not only *posits itself*, but also does so by pronouncing the judgment *I am I*; which is an absurdity, 137.—The cause of his falling into this absurdity was, that he took the *Ego* ready-formed as it is in the feeling of an adult person, and analyzed the concept of the same, 138—not perceiving that this concept was a product of reflection, *ibid.*

According to him, the *Ego*, by the act whereby it pronounces: *I am I*, posits the first of its objects, that is, itself, 139—but the truth is, not that it has posited itself, but that it has known itself reflectively, *ibid.*—Then the *Ego*, making another act, says: "I am not the *non-Ego*," that is, produces the second of its fundamental objects, *ibid.*—but (says the Author) this also is purely an act of *knowing*, and produces nothing, *ibid.*—Then

again the *Ego* makes a third act, pronouncing: "The *Ego* and the *non-Ego* are in the *Ego*," 140.—Evident error contained in this statement, *ibid.*—He changes the meaning of the word *Ego*, confounding the *Ego* produced by him through speculation with the real *Ego*, in which alone the true knowledge of oneself lies, 141.—Now the admission of the real *Ego* anterior to the conceptual *Ego* is the destruction of the system he wants to establish, *ibid.*—Finally, owing to the confusion of the meanings given to the word *Ego*, he concludes that the *Ego* makes equation with the *non-Ego*, inasmuch as they are both found in the same *Ego*, whose productions they equally are, and therefore are rooted and immersed in the same primitive act of the *Ego*, *ibid.*

In his system the fundamental objects of the knowable, and of the universe, are three, 142.—But it must be observed 1st that in these three objects the value of the word *Ego* always changes, *ibid.*—2nd that the *Ego*, by producing the *non-Ego*, produces an entity different from itself, 143.—3rd that no equation can be made between two such contraries as the *Ego* and the *non-Ego*, 144.—4th that this system has no sufficient reason, 145.—5th that in this system all the first principles of reasoning are violated and destroyed, 146-150.—This system was originally developed in the East, and the Indian philosophers who professed it came to the same conclusions, 151.—Its inconsistencies, 153.—It gave to the *Ego* the nature of reflection, and endowed it essentially with consciousness, 161.

Other places in which Fichte is mentioned:—152, 154, 156, 158, 162, 167.

FICINO (Marsilio) (1433-1499). He supposes the plants to be animated, and attributes indivisibility to their souls, 224 n.—He says that our soul is incorporeal because it feeds on the *incorporeal and eternal truth*, 634 n.—Cited also at 385 n.

Appendix. His translation of a passage in Plato is quoted, 78 n.—Also that of another passage; 108 n.

FLANDIN (Charles) (. . . -1803). Reference is made to a *Memoir* he

wrote on the subject of lead-poisonings, 2068 n.

FLOURENS (Marius) (1794-1867). His experiments on the sight, 451.

FONTANA (Felice) (1730-1805). He accustomed himself to perform movements contrary to those which are instinctive and spontaneous, 358.—Having injected into the veins of a living animal the poison of a viper, he saw the animal instantly fall dead, and its blood become coagulated, 586.

FORNI.—He is one of those who attribute to the elements, or to the corporeal molecules the properties of life, 528 n.

FOURNIER DE PESLAY (François) (1771-1833). Mentioned at 601.

FRACASSATI (Carlo) (.....-1672). Having injected a styptic liquor into the crural vein of a dog, he saw the mass of the blood instantly coagulate, 586.

FRAY.—He is one of those Naturalists who believe in *spontaneous generation*, 491.

FREITAG (John) (1581-1641). He undertook to demonstrate against Sennert the activity of the elements, and the origin, from matter, of the shape and of the soul of animals, 523.

FRESNEL (Augustine) (1788-1827). What he says of the undulatory movements in order to explain the phenomena of light has been reputed very probable, but it is not enough for explaining vision, 1582.

FYENS (Thomas) (1567-1631). He says that the soul is *form*, that form gives being, and that everything operates according to its being, 289 n.—He declares that the soul tends, not to deteriorate, but to preserve its own body, 302.—He, erroneously, maintains that "the imagination directs the formative virtue by means of species as by the exemplar cause," 1742 n. (*N.B.* In the text the Italian name of *Fieno*, given to this author, has been preserved. TR.)

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GALEN (Claudius, of Pergamus) (131-201). He refutes the Epicureans, who denied Divine Providence, 407 and n.—As they expressed the cause of the generation of things, and of

the other natural phenomena, by the word *nature*, he tells them that to invent a word is not to explain facts, *ibid.* n.—He cannot explain how the substance which composes the embryo and then the foetus, and performs movements so well regulated, can be a thing devoid of reason, *ibid.* n.—He is struck with wonder at seeing that man and animals can move their nerves and muscles to supply their wants, without at the same time knowing what those nerves and muscles are, and of what shape, 415.—In his treatise on the formation of the foetus he refers to the opinion of certain physicians who considered every muscle as a distinct animal of itself, 545 n.—He says that the *semen* proceeding from the father is converted into brain-substance, 600 n.—His definition of *nature*, 1930.—He declares that nature does everything for the well-being of man, 1940—that it expels things that are hurtful and preserves for its use those that are beneficial, *ibid.*—Mentioned also at 473.

Appendix. Quoted at 95 n.

GALLILEI (Galileo) (1564–1642). Encomiums bestowed by the Author on this immortal genius, 1278.

GALL (John Joseph) (1758–1828). He did his best to prove that man sees only with one eye, 451 n.—The Author discourses on the merits of his works and those of Spurzheim, and distinguishes in them the part which is true from that which is erroneous, 994–998.—He seems to have conclusively proved, that the *cerebellum* is the organ of physical love, 2217 n.

GALLINI (Stefano) (1756–1836). Mentioned at 1793 n.

GALLUPPI (Pasquale) (1770–1846). A critique of his definition of philosophy, *pref.* 15.—He says, erroneously, that judgment is only an analysis of complex perception, 77 n.—He rightly maintains that there can be no sensation unaccompanied by our own substantial feeling, 95—but is wrong when he says that we have the perception of the *Ego* from the very first of our sensations, *ibid.*—He has not realized to himself the fact of the existence of the fundamental feeling, *ibid.*—He is not cognizant of the true nature of *object*, but uses this

name to signify what is merely the term of sensation, *ibid.*

Appendix. Mentioned at 121.

GARDUCCI. He adduces the sensitive operations as a proof of the simplicity of the soul, 437 n.

GAZEUS (Æneas) (V Century). He says that every rational act of the soul is a proof of its immortality, 721 n.

Appendix. Cited at 90 n, 204 n.

GALLI (Giambattista) (1498–1563).

Reference is made to his book *I Capricci del Bottaio*, 718 n.

GENNADIUS (of Marseilles) (V Century).

He alludes to some Syrians, who distinguished in man two souls, the one *sensitive* residing in the blood, and the other *intellective*; but as he does not say anything about the *vegetative* soul, it would seem that the latter was not admitted by them, 224 n.—He says that the error of admitting two souls was widely spread in Syria, 717 n.

GERBERT (Sylvester II, Pope) (. . . .

—1003). A quotation from his treatise on the question proposed by the Emperor Otho III: "Whether it can be said that the use of reason is the attribute of the rational being," 54.—In that treatise he expounds the opinion of Aristotle on the distinction between the *possible* and the *real*, *ibid.*

GERDIL (Sigismund, Cardinal) (1718–1802). In connexion with the concept of *extension*, a reference is made to his work on the Immateriality of the soul, against Locke, 1135 n.

Appendix. He explains who those most ancient *Theologizers* were to whom Aristotle refers, and from whom Thales most probably borrowed the opinion that every thing comes from water, 11 n.—His exposition of the Pythagorean doctrine is indicated, 36 n.

GIOBERTI (Vincenzo) (1801–1852).

The Author classes him with the Pseudo-mystics, 1325 n.

GLISSON (Francis) (1597–1677). He, in a certain way, forestalled Leibnitz as regards the monad system, 524.—He does not consider the concept of *substance* to be applicable except to things that are endowed with three faculties, the *perceptive*, the *appetitive* and the *motive*, and seeks to prove that the material substance also has

- these faculties, 525.—He saw that a body could not be conceived without the addition of *life* to it; but he did not see that the body is one thing, and the life is another, 525 *n.*—He failed to grasp the nature of sensation, and confounded it with intellection, 525.—He noticed the difference between sensitive and intellectual perception, but did not observe that the intellectual perception is preceded by *intuition*, *ibid.*—He caught a glimpse of the objectivity of intellectual perception, 526.—He attributed to the object of the understanding, as such, an indifference which may be taken away by the will through that function which the Author has called *practical reason*, *ibid.*—He does not know the distinction between extra-subjective phenomena, and subjective facts, 527.—Differences which he assigns between his *natural perception* and feeling, *ibid.*—He attributes judgment to the sense, *ibid.*—and says that the sense can err, *ibid.*—He recognises that the cohesion of his sentient or, as he calls them, percipient particles, is due to their continuity, 535 *n.*—He is of opinion that in matter there are various degrees of absolute condensation, 572 *n.*
- GREGORY NAZIANZEN (St.) (IV Century). He refuted the error of those ancient Naturalists, who confounded the animal life with the intellectual principle, 625 *n.*—His proof of the simplicity of the soul, 634 *n.*
- GREGORY NYSSENUS (St.) (332-390). He says that the soul is one, intelligent, not consisting of any gross matter, but mixed with that gross nature by means of the senses, 229 *n.*—and distinguishes most accurately the principle of man's sensitive life, pointing out that that principle is not the soul of man except in so far as it is apprehended and rationally perceived by the soul itself, 689.
- GREGORY THAUMATURGUS (St.) (III Century). He says that the soul is a substance because, under many modifications, it always remains identical, 112 *n.*—He maintains that it is the proper action of the soul to give life to the body, and that the soul is with its whole self in every part of the body, 449 *n.*—His proof of the immortality of the soul, 723.
- GRUTHUISEN (Francis) (1774-1852). He found that the globules of the blood of those animals that have no heart are the seat of a peculiar movement which has been called *oscillatory*, 589.—He observed that the infusion of different animal substances furnishes *infusoria* of various kinds, 602.
- GUANI (Giovanni Battista) (. . . . 1847). He objected to Brown that the action of external stimuli does not manifest itself by the same effects in all the organs, 1880 *n.*
- H.
- HAHNEMANN (Christian Frederick) (1755-1843). From observing the effect produced by certain medicines on a healthy person, he too hastily drew the conclusion that the same person, if sick, would experience a contrary effect from them, 2130.
- HALES (Alexander de) (. . . . 1245). He observed that the principle of contradiction presupposes in the mind the notion or idea of *being*, 1334.
- HALLER (Albert Von) (1708-1777). Sensitivity observed by him in certain parts of the body, and then extended by Physiologists to other and other parts, 532.—He noticed an *oscillatory* movement in the globules of the blood of dying animals, 589.
- HARVEY (William) (1578-1658). Mentioned at 473.—His observations on the womb in the state of pregnancy are recorded by Tommasini, 1980.
- HASTINGS.—His experiments on the circulation of the blood, 2113 *n.*
- HEGEL (George William Frederick) (1770-1831). His system, based on the principle of BECOMING, was derived from the "We are and are not" of Heraclitus, 1365.
- Appendix.* He expressly admits more than one *Ego* in the world, 147 *n.*—Origin of his NULLISM, 156.—His system, 161-172.—For him, the *Idea* is at once the knowing subject, the ideal object intuited, and the real object perceived, 161—and to it are reduced all categories of things, *ibid.*—It is the *All-God*, *ibid.*—He attempts, therefore, to describe how

the idea is transformed into those diverse categories, 162.—It is, 1st Idea *in* and *per se* (pure logical idea); 2nd Idea in its transformed being (Nature, the *non-Ego* of Fichte); 3rd Idea which, from its transformed being, returns into itself (spirit, soul), *ibid.*—Hence his division of philosophy into three parts: *Logic, Philosophy of Nature, Philosophy of the Spirit, ibid.*—To suppose the second of the three moments named by him is an absurdity, 163—because if the Idea could transform itself into Nature, it would annihilate itself, 165.—Neither can the third moment be admitted, *i.e.*, that the idea, from its transformed being, returns into itself, 166.—These transformations are so many mental operations, 167.—The transforming virtue consists in thought, which, according to him, can conceive being in so abstract a form as to take from it, first, all its determinations, and then itself, in which case it makes equation with *naught*, 167.—Hence the name he gives it of *naught-being, ibid.*—But it is not true that being can be abstracted from being; abstraction cannot go any further than to take from being all its determinations, when indeterminate being alone remains, *ibid.*—To take away indeterminate being is not an abstraction, but an absolute negation, *ibid.*—Moreover, if thought performs these operations, of abstracting and denying beings, it is plain that thought itself and its operations are different from the being thought of, *ibid.*—Again, thought, to whose authority Hegel appeals, says nothing about its having that transforming virtue which he attributes to it, 168.—And even if it had this virtue, he is bound to give an adequate explanation of *when* and *how* it uses it, 169.—Now all his explanation consists in saying that the transformations take place by *becoming* (the supreme principle of his philosophy), an act in which naught and being are joined together, *ibid.*—But this *becoming* is an absurdity, because it supposes that something *becomes* without a cause, *ibid.*—What series of erroneous propositions would necessarily follow if this first error were adopted, 170.—Hegel's philosophy is a reproduction

of the Indian philosophy, and particularly of that of some Buddhist Schools, 171.—It involves impiety, 172.

HEIDEMANN. He noticed in the globules of blood a slow contraction which causes them, when they have attained to a state of rest, to shut themselves up within themselves, 589.

HELMONT (John Baptist, Van) (1577–1644). Allusion to his *Archæus* and his *Formative spirit*, 473.—He places a seminal soul in the matrix, *ibid.*—After he had proposed his *Archæus*, there appeared some Philosophers or Physicians who took the name of *Neo-Pythagoreans*, 522.—He is mentioned at 1963.

HERACLIDES (Ponticus) (IV Century B.C.). In his book on the *Allegories of Homer*, he has preserved two sayings of Heraclitus, 1365.

HERACLITUS (of Ephesus) (V Century B.C.). He believed in a world-soul, 516.—He placed the nature of the soul in fire, and made fire the elementary principle, the *substratum* of all things, 622.—It seems that he identified light with fire, *ibid.* and *n.*—According to Aristotle, he made life and intelligence to consist in continuous motion, 1365.—He said that all things stood on the borderline between *being* and *non-being*, were made and unmade, *ibid.* and *n.*

Appendix. He places the principle of things in fire, 16—but it seems that this fire of which he composed the soul, was incorporated with humidity, *i.e.*, was vapour, 16 *n.*—According to Diogenes Laërtius, he despaired of its ever being possible to find out with certainty what was the nature of the soul, *ibid.*—What was his doctrine, according to Macrobius and Plutarch, *ibid.*, *n.*—Analogy between his elementary fire and the *ethereal light* of the Indians, 82 *n.*—He believed in the existence of a common reason and a divine one, by partaking of which the soul, in old age, knew the universal and the true, 89 *n.*—He derived all things from fire, and maintained that the soul was made of light, 93.—Mentioned also at 77, 86 and *n.*, 87 *n.*

HERMIAS (II Century). He ridicules the doctrines professed by heathen Philosophers about the soul, 668.—

- His belief in the soul's immortality, 725 *n*.
Appendix. He says the Stoics believed the soul to be made of air, 16 *n*.—Quoted at 11 *n*.
- HERMACHUS (of Mitylenæ) (III Century B.C.). *Appendix*. Named at 55 *n*.
- HERMOTIMUS (of Clozomene). A report was current in the time of Aristotle, that Hermotimus had preceded his fellow-townsmen Anaxagoras in the opinion that *mind* was the cause of the universe, 1282 *n*.—Both these philosophers fix the period in which the two schools, the Ionic and the Italic, mixed their doctrines together, *ibid*.
- HERODOTUS (484–400 B.C.). He relates that the Egyptians, when celebrating the sorrow of Adonis, shaved their hair, and cut their bodies, 1580 *n*.—and says that similar customs prevailed among the Scythians, *ibid*.
- HESIOD (IX Century B.C.). *Appendix*. Named at 11 *n*.
- HESYCHIUS (of Miletus) (VI Century). *Appendix*. Quoted, 72 *n*.
- HEWSON (William) (1739–1774). He says that he found the blood differing in colour, temperature, and density, in the different parts of the body, 586.
- HEYNE (Christian) (1729–1812). *Appendix*. He observes that the ancients supposed the *præcordia* to be equally the seat of the movements of the soul and of the mind, 80 *n*.—Mentioned at 14 *n*.
- HIEROCLES (V Century). *Appendix*. Quoted at 39 *n*.
- HILDEGARDES (. . . –1178). *Appendix*. —Tries to prove that the soul is made of fire, 17 *n*.
- HIPPARCHUS. *Appendix*. He is said by Macrobius to have adopted Democritus's opinion about the nature of the soul, 16.
- HIPPASIVS. *Appendix*. Mentioned at 20 *n*.
- HIPPO (of Rhegium) (V Century B.C.). *Appendix*. He placed the nature of the soul in the genital humour, which, therefore, gave life, 11.—Aristotle ranks him with the vulgar philosophers, 13.
- HIPPOCRATES (460–372 B.C.). He based medicine on the principle that the force of nature tends to ameliorate and not to damage, 302.—For him, according to Stahl, nature is merely greason acting without consciousness, 408 *n*.—Fernel calls attention to the fact that Hippocrates often gives the name of *spirit* to calorific matter, 428 *n*.—and says that, if man were one, he would never be ill, 718.—A celebrated sentence of his, 1872.
 He says that natures have a meditative virtue, 1940.—Before him, others had already observed the instinct of the hippopotamus, who rolls himself over sharp and cutting bodies in order to obtain an opening in his veins surfeited with blood, 2136 *n*.
 Cited also at 494 *n*, 1879.
- HOBBS (Thomas) (1588–1680). His definition of philosophy is criticized, *pref*. 14.
- HOFFMAN (Frederick) (1660–1742). In what consists, according to him, the life of the human body, and the integrity of its functions, 1863.
- HOMER (IX Century B.C.). Some have attributed to him the opinion that human prudence resides in the blood, 617.—He calls the spirit the *heart* of the soul, 718.—Other noteworthy expressions applied by him to the spirit, *ibid*.—He abounds in metaphorical language, 1467.—In the *Odyssey*, Pisistratus, the son of Nestor, tells Menelaus that, to render honour to the dead, all that one can do is to shave the hair and weep, 1580 *n*.
- HOUDART. His remark on spontaneous generation, 494 and *n*.—He mentions cases of dead bodies in which no evidences of disorganization were found at first, but were found afterwards by accident, 608 *n*.
- HUET (Pierre Daniel) (1630–1721). *Appendix*. Cited at 82, 119 *n*.
- HUMBOLDT (Alexander) (1769–1859). He says that his observations have led him to conclude, that around the nerves and muscles there is a sensible atmosphere, 2215 *n*.
- HUME (David) (1711–1776). He maintained that the universe might be composed of accidents alone, 1320.
Appendix. His system, 132.—Assuming the truth of the Lockian Sensism, he deduced from it, as a consequence, that ideas also, and the principles of reasoning, were merely modifications of the soul (*Rational Idealism*), *ibid*.—Quoted at 134, 135.
- HUNTER (William) (1718–1783). He thinks he has discovered that the

temperature of the blood is different from that of the body, 586.—He reproduced the opinion which places the soul in the blood, and affirmed that "Organization has nothing in common with life," 618.—The *Recherches Anstaltiques* say that he placed in the number of established truths the opinion that the blood is a living fluid, 619 n.—He is mentioned at 1980.

HUTCHESON (Francis) (1694-1747). He contributed to prepare the way for the Scottish School, 1805 n.

I.

IMPARZIALE di FAENZA (The) (A.D. 1845, nos. 49 and 50). In this journal, the theological arguments urged against the Author by Gioberti were published together with the answers to them, 1325 n.

INDIANS (Sacred books of the). These books are noticeable for the comparative scarcity of that metaphorical language of which the Holy Scriptures and generally all ancient books are full. This, the Author thinks, is a proof either that they are not very ancient, or else are mere translations in which the original has been considerably altered, 1467.

INGENHOUSZ (John) (1730-1799). He believes in spontaneous generation, 491.

IRENÆUS (St.) (Bishop of Lyons) (. . . -207). From the simplicity of the soul he infers its immortality, 723.

ISIDORE (St.) (of Pelusium) (V Century). From the nature of the action which the soul exercises on the body he proves that the body is contained in the soul, 833 n.

ISWARA KRISHNA. His poem which gives a compendium of the *Sankhya* philosophy is taken by the Author as a guide in the interpretation of the word *Manas*, 513 n.

J.

JACOBI (John Frederick) (1743-1819). *Appendix*. Mention is made of his *implicit faith*, which resembles that propounded in Reid's system, 135.

JAMBLICUS (of Chalcis) (IV Century B.C.). He holds that between ideas

and the soul there is a kind of continuity, 233 n.—The Author cites him as a sample of the Platonic way of proving the immortality of the soul, 609 n.

Appendix. Mentioned at 90 n, 174 n.

JAMES (OF FORLÌ) (XV Century). Cited with others, 285 n.

JANDUNO (Giovanni, de) (XIV Century). Cited with others, at 455 n.

JEROME (St.) (331-420). He says that the souls of brutes are propagated *ex traduce*, namely, *traduce carnis*, but denies this of man, 461 n.—He declares that it would be heretical to believe in a rational soul annexed to all things, 519 n.

JOHN (of Salisbury) (1110-1180). He says that the human soul grows by a *certain distension*, but this only *with the reason and the understanding*, 692 n.

JOHN (The Sophist). *Appendix*. He is believed to have been the originator of *Nominalism*, 200 n.

JOSEPH (Flavius) (37-100). He distinguishes the spirit from the soul, 718.

JUSTIN (the Martyr) (II Century). *Appendix*. He testifies that Aristotle denied motion to the soul, 204 n.

JUVENAL (38-120). He distinguishes *Anima* from *Animus*, 230 n, 718.

K.

KANT (Immanuel) (1723-1804). He perverted the philosophical language by usurping the word *intuition* to signify *sense-perception*, 53—and thus showed the Sensism which lies at the bottom of his system, *ibid*.

As regards the hypothesis of the animation of the material elements, he drew considerably on the Monad-System of Leibnitz, 524.

He erroneously divided the *theoretic* and the *practical* reason into two radically different faculties, 1396 n.—The Author calls him the corruptor of the true method of philosophizing, 1462.

Mentioned also at 30 n, 1133.

Appendix. He made *space* a subjective form of the human spirit instead of making it a form of the fundamental feeling, 103.—His system, 134.—He admitted the laws and instincts of Reid, and retained the

doctrines of Berkeley and Hume, *ibid.*—and hence concluded that all that remained to be done for perfecting philosophy was to determine what are the subjective laws of the spirit. (*Critical Philosophy, Rational Idealism* reduced to system), 134.—He said, that from the fact of man being unable to prove the existence of any being different from himself, it does not follow that there may not be such, *ibid.*

KAPILA (Founder of the *Sankhya* philosophy). His school is mentioned, 428 n.

KARSTEN (Simon). According to him, Parmenides attributes *faith to truth*, and *fallaciousness to opinions*, 1048 n.—A passage of Parmenides quoted by him, 1338.—He mis-judges Parmenides by saying of him: *Nec unam amplexus est veritatem, nec sprexit omnino opiniones*, 1368 n.—He recognizes that Aristotle was wrong in attributing to Parmenides the opinion that the *One (being)* was the principle of natural things, *ibid.*—His acute observation about an expression of Xenophanes as compared with one of Cicero, 1725 n.

Other places in which he is cited, 1369, 1608 n, 1650 n.

Appendix. His proposal to correct a place in Aristotle, 50 n.—He says the Neo-Platonists are mistaken in attributing the theory of the *intelligible world* to Empedocles, 82.

Quoted also at 20 n, 52, 53 n, 54 n, 61 n, 64 n, 90 n, 98 n.

KEPLER (John) (1571-1630). Quotation from his Work *On the Harmony of the World*, 1726 n.

KIRKER (Athanasius) (1601-1680). Quoted, 521.

KOULLÛK.—*Appendix.* In his commentary of the Book of the Laws of Manu, he says, that, according to Indian belief, the *instinctive intelligence* comes forth from the *supreme soul*, in virtue of the creative energy, under the form of ethereal light, 82 n.

KUMETIL.—Mentioned at 521.

L.

LALLEMAND (Claude François) (1790-1854).—Reference is made to his observations on Zoosperms, 600 and n.

LAMARCK (Monet T. Baptiste, de)

(1744-1829). He believes in spontaneous generation, 491.

LAMBIN (Dénis) (1516-1572). *Appendix.* He says that Cicero wrongly interpreted Aristotle's *εντελεχεια*, by taking it to mean continuous motion; but he is opposed in this by Davis, 204 n.

LAMENNAIS (Robert, de) (1782-1854). His error in pretending to prove that the heathens were not true idolaters because they referred their worship to the divine virtue and power, 1723.

LACTANTIUS (C. F.) (. . . -325). He holds that there are in man two lives, but finds an inextricable difficulty in explaining how this is, 718 and n.—He says that the soul is drawn *a celesti subtilitate*, and from a heavenly breath, deducing from this its immortality, 721—as he also deduces it from considering the rights of justice, which is of its nature immutable and eternal, 724.

Appendix. He places the vital principle of the animal in heat, 17 n.—Quoted also at 13 n, 14, 24.

LE-CAT (Claude Nicholas) (1700-1768). Mentioned at 521.

LEIBNITZ (Godfrey William) (1646-1716). Why he thought the *influxus physicus* an impossibility, and hence invented the hypothesis of *pre-established Harmony*, 280.—He silences Stahl by the cogency of his objections respecting the nature of the soul, 418.—He caught a glimpse of the fact that the subjective phenomena and the extrasubjective are specifically different, 427.—In his *monad-system* he was in some way forestalled by Glisson, 524.—His *monads* approach in some way the sentient principles admitted by the Author, 555.—He considered the soul to be a sort of *proportional medium* between the spirit and the body, 718 n.—Why he did not grasp the nature of the subjective body, *ibid.*—The Author quotes a passage which shows that this great man perceived that the least accidents might constitute *common qualities*, 1031 n.—This was the same as indirectly to recognise, that in order to have the *common or universal* it was not necessary to abstract the accidents or anything else from a particular being, but it sufficed to prescind from its individual subsistence,

ibid.—On the strength of the principle of *rational faith*, he foretold the discovery of Zoophytes, 1046, 1049.—He erroneously affirms that duration is divisible *ad infinitum*, 1212.

A hint to his opinion that bodies, when moving, do not preserve their identity, 1220.—The Author is surprised to find that so great a genius admitted the *continuity* of motion without having any suspicion of the insurmountable difficulties which that admission involved, 1367.—Leibnitz maintains that a substance cannot, in the order of nature, exist without some action; but this is true only in reference to the primal and immanent act of existence, *ibid.* *n*—hence he is illogical in inferring that there are no bodies without motion, *ibid.*—He observed that in the ancient languages there are indications tending to prove that the first substantive nouns could not have been *pure substantives*, but must have been *qualified substantives*, 1462.—He did not, however, catch sight of the reason why man is inclined to form *common names*, 1463.—He defined music *An Arithmetic of the Soul*, 1754.—He attributed to the sensitive soul a kind of occult and mysterious reasoning, and why, 1759.—Cited also at 1525 *n*.

LEO X (1475-1521). He confirmed the definition of the Council of Vienna, affirming that the rational soul is *Forma humani corporis*, 227 *n*.

LEONTIUS.—He deduces the immortality of the human soul from considering the rights of justice, which is, of its nature, immutable and eternal, 724.

LEUCIPPUS (· · · -328 B.C.). He attributes to the soul the nature of *fire*, 622.—He supposed all things to be the result of two conjoint elements: the *atoms*, which he called *being*, and the *vacuum*, which he called *non-being*, 1368 *n*.

Appendix. In determining the nature of the soul, he followed the doctrine of Democritus, 16.—Like Democritus and Epicurus, he took in a material sense the ancient system of *simple being*, from which, by supposing *matter* to be at the bottom of it, all things were derived, 92.—The error of those philosophers respecting

the nature of the soul, arose from confounding the *subject* (the soul) with the *extra-subjective* (matter), *ibid.*—He placed the nature of the soul in *fire*, 93.—Mentioned also at 20 *n*.

LIEBERKÜNN (John) (1711-1756). His method of cure for the case of dropsy in the lungs, mentioned by Montfalcon, is adduced as a proof that in certain cases the principal condition necessary for the exercise of sympathy between similar organs, is that they should be made to act in unison, 1923.

LINUS.—*Appendix.* Mentioned at 11 *n*.

LISTER (Martin) (1638-1711). He maintained that the pulsation of the heart of snails is *voluntary*, 359 *n*.—The Author observes that snails have no will, and that Lister's remarks only go to prove that the pulsation in question depends on the sensitive and animal principle, *ibid.*

LOBSTEIN (John Frederick) (1736-1784). He calls the plastic force by the name of *Plastidynamia*, 473 *n*.

LOCKE (John) (1632-1704). *Appendix.* He is named as one of those who have persuaded themselves that wisdom may be easily secured by rejecting the treasure of cognitions accumulated in the course of ages, 205.

LODER (Justus Christian) (1753-1832). He found that persons who had never experienced the sensation of smell, were without olfactory nerves, 2083.

LUCRETIUS (C.) (VII Century B.C.). He attempts to derive the mortality of the soul from the fact that the sensitive soul is mortal, 439.—He represents the soul under the image of an eye, and says that the spirit is the light of the eye, 718.—He says also that the spirit is the *soul of the soul*, *ibid.*

Appendix. A passage is quoted in which he expounds the opinion of those ancient philosophers who reduced the four elements to one, that is, to *fire*, 77.—Quoted also at 28 *n*.

M

MACROBIUS (V Century). Quoted as an example of the mode of reasoning by which Platonists were wont to defend the immortality of the human soul, 609 *n*—and also as a proof

that they believed even the brutes to be immortal, 612 *n.*—He says that "Music gives life to all living things," 1540—and that "the heavenly soul with which the universality of things is animated" had its origin in music, *ibid.*

Appendix. According to him, Heraclitus, the Naturalist, maintained that "the soul was a spark of the sidereal essence," 16 *n.*—He tells us that Xenophanes supposed the soul to be made of earth and water, while Parmenides, his disciple, thought it was made of earth and fire, 20—but probably he applies to the soul what these philosophers had meant to say of *man*, 21.—He says that Aristotle denied all motion to the soul, 204 *n.*—appealing to others also as witnesses to the truth of this, *ibid.*

MAGENDIE (Francis) (1783-1855). His various experiments in connexion with the phenomenon of sensation, 451 and *n.*—and with the reciprocal movements of the lungs and the diaphragm, 1850—and with the feeding of animals, 2001.

MAINCOURT.—Mentioned at 1980.

MAINGAULT.—In a man who was habitually troubled with a disagreeable smell, he observed that the arachnoid was ossified at various points, and that there were cysts in a state of suppuration in the middle of the cerebral hemisphere, 2082 *n.*

MALERRANCHE (Nicholas) (1638-1715). Why he declared the *influxus physicus* to be impossible, and hence had recourse to the hypothesis of *Occasional causes*, 280.—He caught a glimpse of the fact that the subjective phenomena and the extra-subjective ones are specifically different, 427 *n.*—He looked upon the soul as a *proportional medium* between the spirit and the body, 718 *n.*—What truth there is in his dictum that God is like the *place of intelligences*, 2231.—He did not grasp the distinction between the concept of *God*, and the concept of the *divine*, *ibid.*

MALPIGHI (Marcello) (1628-1694). He was the discoverer of the globules of the blood, 592 *n.*

MAMERTUS (Claudianus) (. . . 474). He says that the intellectual soul is like to God even as "the intellectual is to the intelligible," 651 *n.*

MAMIANI (Terenzio) (1800-1885).

The Author explains why he did not reply to Mamiani's letters containing strictures on his system, 77 *n.*

Appendix. Mamiani observes that the concept of *becoming* is phenomenal, 169 *n.*

MANOL.—Mentioned at 491 *n.*

MANU.—Various passages of his Code of Laws, in which he describes the origin of the world, 513.—In that Code he distinguishes animate from inanimate beings, *ibid. n.*—and expounds six emanations of the Supreme Being, *ibid.*—He describes the elements as durable, but the organisms as perishable, 514 *n.*

Appendix. Mentioned at 82 and *n.*

MARTINET. Mentioned at 601.

MASCAGNI (Paolo) (1755-1815). Mentioned at 1980.

MAULD.—He thinks he has discovered that the tartar of the teeth is nothing but a congeries of *animalcules*, 532.

MAUFERTIUS (Pierre Louis) (1698-1759). Reference is made to the way in which he conceived the organizing principle of nature, 473.

MAXENTIUS (Joannes) (VI Century). He deduces the simplicity of the soul from the fact of its being present with its whole self in every part of the body, 453.

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- REID (Thomas) (1710-1796). *Appendix*. His system, 133.—Not being able to reply to the paralogism that "The soul cannot go outside itself, and therefore cannot think anything but itself," he cut the knot by saying that the soul perceives and thinks things different from itself in virtue of primitive and instinctive laws (*Realistic Subjectivism*) *ibid*.—Mentioned at 134-136.
- REINHOLD (Charles Leonard) (1758-1823).—Mentioned at 72. *Appendix*. His system, 135.—He attempts to remove the fatal consequences of the *Critical Philosophy* by his *System of Representation*, but in vain, *ibid*.—Hence, despairing of reason, he abandons it, hoping to find a better guide in Jacobi's *faith*, *ibid*.—His error consisted in supposing that the mind perceives objects simply through *representation*, meaning by it a *likeness* of those objects, *ibid*.—Mentioned at 136.
- RÉMUSAT (Jean Abel) (1788-1832). *Appendix*. Quoted at 151 *n*.
- REZIA (Giacomo) (. . . -1825).—Mentioned at 1980.
- RICCATI (Giacomo) (1676-1754). From the sensitive operations of the soul he infers its simplicity, 437 *n*.
- RICHERAND (Antelme) (1779-1840). His observations on spontaneous generation, 491—and on the apparent conflict between the animal movements and attraction, 1834.
- RICCHIERI (Ludovico) (1450-1520). Quoted with others who have confounded the *ideal* with the *real*, 285 *n*. *Appendix*. He thinks that the *possible intellect* of the Peripatetics corresponds to the *reason* of the Platonists, and the *acting intellect* to the *mind*, 174 *n*.—A passage in which he does not seem to draw a clear distinction between these two intellects, *ibid*.
- RITTER (Henry) (1791-1869). *Appendix*. He considers it important to note that Aristotle calls the *form* of things by the name of *substance*, 178 *n*.
- ROBINET (Jean Baptiste) (1745-1820). He maintains the doctrine of spontaneous generation, erroneously supposing it to be a proof of the truth of Materialism, 492 *n*.
- ROY (Le).—On what principle he proposed the adoption of his purgative medicine, 1946 *n*.
- ROLANDO (Luigi) (1773-1831). Mention is made of his experiments on the sight, 451 and *n*.—He maintains that the nervous system is inherited from the father, and the cellulose-vascular system from the mother, 600 *n*.—Mentioned at 590, 601.
- ROMAGNOSI (Giovanni Domenico) (1761-1835). For the Cartesian proposition, "I think, therefore I exist," he substituted this other: "I feel, therefore I exist," but he did not realize to himself the full force which this substitution might have, 287.
- ROSA (Michele) (1731-1812). He reproduced the opinion which places the soul in the blood, 618.
- ROSCELLIN (John) (XI Century). *Appendix*. A Nominalist; his works were condemned by the Council of Soissons, 200 *n*.
- ROSMINI (1797-1855). He tells us why he has thought it advisable to reduce Ontology, Cosmology, and Natural Theology to a single science denominated by him *Theosophy*, *pref*. 22-30.—He considers that science gains by every difficulty which is proposed, and which, if it is very grave and apparently insoluble, always contains a precious secret, 38—quotes examples proving that many of his definitions accord with the propriety of language observed

by the ancient philosophers, and faithfully maintained by the Schoolmen, 54—explains why he did not reply to certain strictures made upon his system by Count Mamiani, 77 *n*—says that as early as A.D. 1821 he drew out some reasons calculated to prove the existence of the fundamental feeling, 96—calls St. Augustine one of his two principal masters in philosophical and theological speculations, 117—observes that it is necessary, in Psychology, to derive many concepts from Ontology, on which he has not yet published his treatise, 145—hints at an interesting book which could be written on the *diversity of intellects*, 241.

On the question "In what parts the movements excited in our body by the rational principle begin, and how those movements are propagated," he did not always entertain the same opinions, 369.—He says that he felt it a duty to apply a kind of intellectual chemistry to the most controverted philosophical opinions, 435—and that his belief that every sensitive soul has unlimited solid space for its term was forced on him by a long meditation, and as a logical necessity, 556.—He is strongly inclined to Rolando's opinion that the nervous system is inherited from the father and the celluloso-vascular system from the mother, 600 *n*—professes his inability to determine the degree of perfection, unity and harmony which the animal feeling must have reached in order that the subject may be fit to be raised from being purely animal into being also intellective, 671—says that his opinion about the *first understood* is substantially the same as that of St. Thomas, 634.—He has reproduced that part of Psychology which relates to the essence of the soul, but in such form as might suit the taste of his contemporaries, 731—intends to compose only such Ontology as it is granted to man, and to him in particular, to know, 743—declares that he has always proposed to himself "to speak of things exactly as they are found in perception and are expressed by men," 775—interprets a passage of Cardinal Gaetano about the reduction of human *acts* to one only, 859 *n*—and another about the action of the *light* of the acting in-

tellec on the *phantasms*, 860 *n*.—He refers to the great difficulty there is in explaining how *free acts* do not annul the unity of the acting principle, 894.

He calls St. Thomas the "prince of Italian philosophers," 907—says that, heedless of the scoffings of some of his fellow-countrymen, he will not rest satisfied with that superficial science which is, in fact, a false science and full of presumption, 933—intimates that the application of the general principle from which to deduce the reasons of the different kinds of *sensations* is reserved to the future progress of philosophy, 981—but that in the meantime he desires to open the way to the study of that application, *ibid*.

He promises (D.V.) to treat in the Theosophy the difficult question "How the soul can receive into itself the action of the divine essence, and how the divine essence can act in the soul," 1005.—He has somewhere said that there is no absurdity in our conceiving a subject endowed with a nature purely intellective, but this is true only if the thing is considered on the part of the subject, and not on that of the object, 1008—does not remember to have ever seen the function of *universalisation* accurately described by any philosopher, 1031 *n*—says that he will not decide the question "Whether or not there are in man affections of so pure a nature that his animality has no part whatever in them," 1088.

He has begun the Psychology by the eminently synthetic inquiry "What is the nature of the soul?" but he has done so only after having, in previous works, analysed all that it was possible for him to observe of the acts and faculties of the soul, 1118.

He corrects several inaccuracies committed by Professor Orioli in his observations on the infinity of space, 1132 *n*—solves an objection which a disciple of Parmenides is described by Plato as urging against Socrates, who said that things were *many*, while their *species* was one only, 1184 *n*—styles Italy the native home of Dialectics, 1208—says that it was in that country that intellects began to soar up to the most elevated scientific

questions, *ibid.*—thinks it opportune to cite examples of the insufficiency of the terms used by the greatest thinkers, 1231 *n*—explains why in this and other works, he frequently takes the liberty of recommending special attention to his statements, 1274 *n*.

Why Italy flourished in the natural sciences at the school of Galileo, but seemed old, lazy and slow to respond to the invitation of the philosophers of the XVI century, 1278.—According to him, Divine Providence intended that the Italians should for a long time occupy themselves with the mathematical and physical sciences as a suitable preparation for the higher and more important ones, such as the philosophical and the civil, 1279.—He notes that some ill-advised persons blamed and cried him down for having wished that Italian philosophy also should, at last, in its process, faithfully obey the common laws of thought, *ibid.*—but that this opposition would have no power to make him swerve from the method he had adopted in philosophical speculations, *ibid.*

He regrets it as an ancient shame and calamity of Italy that so noble a philosopher as Mare Antonio Zimara should be so little thought of, 1335—says that the sensistic Ontology of Protagoras is still deeply rooted in minds, whence arise all the errors and false systems of modern times, 1368 *n*—and that it is necessary to uproot such inveterate prejudice as that of the *continuity* of motion, 1371.

He charges Kant with being the corruptor of the right method of philosophizing, and having introduced into Germany the caustic spirit of sophistry, 1462.

He owns to having formerly expressed the *opinion* that men could not, by themselves, progress so far as to think, and give names to pure abstracts; but upon more mature reflection, the demonstration he had offered to that effect does not seem to him irrefragable, 1471—observes that, of all the abstracts, the verb *to be* is the only one that has never been expressed by way of metaphor; which seems to him a manifest testimony of the common sense of men

in favour of his philosophical system, 1525—calls St. Thomas the greatest philosopher and theologian of Italy, 1660.—An experiment he made for discovering that the desire of sleep proceeds from man acting, not as a direct, but as a reflex principle, 1676.

He says that he has found by his own experience, that the cognitions spontaneously and secretly arrange themselves in their proper order in the mind, without any free action on our part, 1707.

Among the queries which have often presented themselves to his mind without his ever having been able to find the time for attending to them, there is one regarding the attraction and revolution of the heavenly bodies, 1833 *n*.—He is willing to admit what some physiologists call *latent sensitivity*, provided there be meant by it a sensitivity of mere *continuity* without excitation, owing to the want of suitable organs, 2011 *n*.

He knew a certain priest who had suddenly found himself possessed of a most unusual degree of mental perspicacity, and then in a few days had become insane, 2092.

He expresses a fond wish that some wise physician would undertake to form a new theory "On the Art of Medical experiment," 2098—apologizes to medical men for having presumed to touch upon matters belonging to their profession, and begs of them to correct any mistakes into which he may have fallen, *ibid.*—shows cause why investigation into these matters should not be deemed inconsistent with the sublime excellence and duties of the Christian Priesthood, 2229—and lastly he recapitulates his long work, 2230.

Appendix. He says that from his earliest youth he gave himself up as a disciple, first to truth and then to the common sense of men, the drift of whose thinkings he had done his best to master, 1—thinks, that as regards opinions on substantial and necessary points, there has been more agreement among philosophers than would seem at first sight, *ibid.*—expresses a wish that some thoroughly competent hand would write a "History of *Platonism* anteriorly to Plato," 82—says that from a work which he intends to publish, it will be seen

that the wonderful constitution of the soul's sensitivity is the supreme principle of the science of *Æsthetics*, 114—declares that he had not contented himself with distinguishing the ancient philosophical systems simply according to their *prima facie* appearance, but had endeavoured, extremely difficult though the task might be, to penetrate into the real mind and meaning of their authors, and to express it accordingly, 205.

ROUX.—He maintains, that a phenomenon is not *sympathetic* except when it cannot be explained by means of one of the three excitators of the vital properties, 1885—and thus restricts *sympathy* within too narrow a sphere, *ibid.*

RUDOLFI (Carlo Asmondo) (1771-1832). He is in favour of spontaneous generation, 491.

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SALANDIER.—In 1820 he proposed the doubt "Whether the circulation of the blood in the capillary vessels might not take place independently of the impulse of the heart," 2113 *n.*

SALLUST (A Platonic Philosopher) (IV Century). *Appendix*. Cited at 90 *n.*

SAVART.—His experiment on the accordance of sounds, 1590.

SAXONY (John of) (XIV Century). Quoted at 455 *n.*

SCASSI (Onofrio).—According to him, the membrane of the womb, called *deciduous* by Hunter, is produced by a kind of natural inflammation, 1980.

SCHELLING (Frederick William). 1775-1854). Reference is made to his book entitled *Ideas on Nature*, 524.

Appendix. He expressly teaches that there are more *Egos* than one, 147 *n.*—His system described, 152-160.—He retains the error which confounds ideas and, generally, the objects of the intelligent spirit, with the spirit itself, 152—and, since those objects are countless, he attempts to unify them by reducing them to one infinite, *ibid.*—By confounding with this infinite the spirit that knows it, he ends in the system of *Absolute Identity*, *ibid.*—which system is the development and completion of Fichte's proposition that "The *Ego*

and the *non-Ego* make a perfect equation," 153.—He accepts Fichte's proposition: "The *Ego* produces the *non-Ego*," that is, "The conscious the unconscious," 154—but he adds to this the proposition: "The *non-Ego* produces the *Ego*, because the *non-Ego* desires to have consciousness of itself," and he thus denies the principles on which Fichte's proposition is based, *ibid.*—The theory which unfolds the first proposition has been called *Transcendental Idealism*, and that which unfolds the second has been called the *Philosophy of Nature*, *ibid.*—He recognises that consciousness is not essential to a being, 155—thus destroying the basis of the system of *Absolute Identity*, *ibid.*—How he explains, 1st *brute nature*, devoid of sensation and understanding; 2nd *sensation devoid of consciousness*; 3rd *aesthetic beauty*, 156.—He says that the *non-Ego* has no connection to acquire self-consciousness, because it is produced by the *Ego*, and hence has consciousness hidden within it; but he gives no proof of this assertion, *ibid.*—In attempting to reduce what is essentially self-conscious, like the *Ego*, and what is unconscious, to one only principle, which sometimes acquires and sometimes loses consciousness, he attempts an impossibility, 157.—He expounds some principles of that part of his system which is peculiar to himself, namely, the *non-Ego* tending to acquire consciousness and again becoming *Ego*, 158.—How he seeks to prove that the *notional individual* is itself the producer of aesthetic works, *ibid.*—Observations on an extract quoted from his dialogue entitled *Giordano Bruno*, in which he says that the finite is perfect when linked with the infinite, and that it cannot be linked with the infinite unless it be previously identified with it, 160.—But (objects the Author) if the finite is previously identified with the infinite, it no longer stands in need of being linked, *ibid.*—Besides, the expression "to be identified with the infinite" is ambiguous, *ibid.*—From the statement that the finite cannot be linked with the infinite except by means of the infinite, he concludes that a work representing the highest beauty can be produced

- only by the eternal, *ibid.*—But this conclusion contains more than there is in the premises, *ibid.*—Moreover, the analysis of the *linking* is wanting, *ibid.*—He says that "all things are in God simply by means of their eternal notions," which are souls, etc., etc., *ibid.*—He finds a contradiction in Hegel, but does not see that the same charge can be laid against himself, 163 n.—Mentioned also at 171.
- SHULTENS.—Quoted at 1576.
- SHULTZ (John Henry) (1687–1744). By means of astringents taken into the mouth by a patient, he stopped hemorrhage in other parts of the body, 586.
- SCOTUS (John Duns) (1274–1308).—Quoted at 455 n.—He denies that separated souls have any inclination to be re-united to the body, 701 n.
- SENECA (L. A.) (3–65). He distinguishes *anima* from *animus*, 230 n.
- SENNERT (Daniel) (1572–1637).—Quoted at 521 n. and 523 n.
- SERRES (John De) (. . . –1598).—*Appendix.* His opinion on the *intelligible matter* of Plato, 68.
- SERVIVS (M. O.) (V Century). Quoted at 1580 n.
- SEXTUS EMPIRICUS (II Century). He refers to a certain Xenias of Corynth as quoted by Democritus, attributing to him the opinion that "All came from, and continually returned to non-being," 1365 n., 1609 n.
- Appendix.* He attributes to Xenophanes a verse saying: "Of earth and water are we all born," 20 n.—classes Empedocles with the Italic philosophers, and says that he admitted a spirit communicating with all nature, and giving life to all things, 53—and also classes him with those who θεὸν ἀπολείποντι, 53 n.—He says that Empedocles placed the criterion of certainty, not in the *sense*, but in right reason, distinguishing the latter into *divine* and *human*, 90 and n.
- Appendix.* Quoted also at 20, 28 n., 80 n., 89 n., 94 n.
- SIMPLICIUS (VI Century). He has preserved for us two fragments of Parmenides where the *principle of cognition* is distinctly expressed, 1364.—He erroneously maintains that Parmenides admitted *being* and *non-being*, 1368.
- Appendix.* When he says that "*friendship* produces the *One* in all things," he means that the *One* by essence produces the *One* by participation, 70.—He considers the *mind* spoken of by Anaxagoras as corresponding to the *friendship* and the *strife* of Empedocles, 73 n.—He says that Empedocles reduced his *elements* to the *monad of necessity*, 75.—According to him, Empedocles posited two worlds, 82 and n.
- Cited also at 20 n., 52 n., 80 n., 87 n.
- SIMON (Gustave) (. . . –1876). He discovered and described a species of *acarus* lodging in the hairy follicles of the human body, 601.
- SINAPIUS (Aloysius Michael) (XVII Century). Quoted at 522 n.
- SOCRATES (469–399 B.C.). He infers the immortality of the soul from the fact of man being made for righteousness, 725.—His dying speeches prove the great force which the intimate conviction that moral good is something eternal, and that man is made for it, exercises on the conscience of upright persons, 725 n.—He held that *species* are distinct from *individuals*, and that while the individuals are many, their species is one only, 1184 n.—In the dialogue entitled *Parmenides*, he erroneously concedes that any essence which exists *per se* cannot be in our mind, 1338, 1369.—Quoted also at 1279, 1368, 1369.
- Appendix.* He is quoted at 40, 99, 184, 195 n.
- SOFFIANUS (Michael) (XVI Century). His translation of a passage in Aristotle favours the German *Panpsychism*, 1286.
- SPALLANZANI (Lazaro) (1729–1799). An experiment of his on *infusoria*, 602.
- SPIGELS (Adrian) (1578–1625). He thinks that the blood is little apt to coagulate in weak constitutions, 586.
- SPINOZA (Benedict) (1632–1677). He erroneously maintains that man is always conscious of everything that takes place within him, 1480 n.
- SPRENGEL (Curtius) (1776–1833). He says that the strongest objection against the psychological system lies in the universality of organic effects, 395.

SPURZHEIM (Frederick) (1776-1832).

The Author examines his opinions and those of Gall, and distinguishes in them the part which is true from that which is false, 994-998.

STAHL (George Ernest) (1660-1734).

The Author considers him to be a writer of great weight, and his works most worthy of study, 399 *n*.—Stahl overlooks the proper distinction between the intellectual order and the sensual, *ibid.*—He looks upon the animal operations as being intellectual, though unaccompanied by consciousness, 408—and maintains that the *nature* posited by Hippocrates is nothing but reason acting without consciousness, *ibid.* *n*.—He misses the true distinction between the intellectual operations done unconsciously and those accompanied with consciousness, 409.—Staggered by the objections urged against him by Leibnitz, and at the same time being a religious man, he replied that he did not expect the immortality of the soul from its nature, but from grace, 418.—He attributes to the soul the power of producing and organising the fetus, 473.—He says that he has seen the blood thrown into a state of inflammation in consequence of a general spasm, 586—also that he has seen epileptics giving a very fluid blood before an access, but very dense during the access, 586.

The movements resulting in secretions and excretions are considered by his school as the effects of the action of the soul, 1798 *n*.

He justly inveighed against the abstraction of those who placed life in motion, 1883 *n*.—He gives to certain small movements of the body the appellation of *tonic*, 1894.—He wrote a famous dissertation on the so-called *Errors of nature*, 1930.

The power with which the animal principle is, for the good of the animal nature, endowed, of expelling hurtful things and preserving beneficial ones, is called by him *αυτοκρατία nature*, 1940.—In his system, the tendency which nature has to the state of health is explained, but the errors of nature remain unexplained, 1964.

He is quoted also at 1931 *n*, and 1963.

STEWART (Dugald) (1753-1828). In

common with other Nominalists, he maintains that *abstracts* are nothing but *words* by which the mind is enabled to pass from one particular idea to another. This opinion, though erroneous in the main, contains a partial truth, 1377-1380.—The example he quotes in support of his view proves the contrary of it, 1380.

STORÆUS (John) (V Century). A passage of Porphyry preserved by him, 617.—He is also quoted at 622.

Appendix. He says that Heraclitus placed the nature of the soul in light, 16 *n*, 93.—His explanation of a sentence of Epicurus on the nature of the soul, 28.—A passage in which the Author thinks that he expounds the teaching of Empedocles regarding *friendship*, 71.

Quoted also at 13, 16 *n*, 20 *n*, 29 *n*, 87 *n*, 89 *n*, 90 *n*, 93 *n*, 95 *n*, 122 *n*.

STRABO (. . . 25). He describes the cruelties practised by the Assyrians on occasion of funerals, 1580 *n*.

STRATO (of Lampsacus) (III Century B.C.). Mentioned in *Appendix*, 19.

STURZ (Frederick).—He quotes passages from ancient writers who expound the opinion of Empedocles that the soul consists in the blood itself, 617 *n*.

He is mentioned also at 517, 621 *n*, 368 *n*.

Appendix. He reads a passage of Aristotle better than Syrianus, 65 *n*—and quotes many extracts from ancient Authors which seem to prove that Empedocles by *friendship* meant the *One*, 67 *n*—while other passages seem to indicate that he took *friendship* and the *one* as two different things, 70 *n*.—He shows that, for Empedocles, the *one*, *chaos*, *matter*, *fire*, were very nearly synonymous terms, 78.—He considers the Neo-Platonists to have been wrong in attributing to Empedocles the belief in the *intelligible world*, 82—and rejects some conjectures of Brucker respecting the teaching of this philosopher, 90.—He quotes many ancient authors who affirm that Empedocles admitted the Pythagorean Metempsychosis, 90 *n*.

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SUAREZ (Francis) (1548-1617). He holds the doctrine that the soul gives to matter *gradum corporæitatis*, 225 *n*—speaks of divisible souls, *quas* (he says) in

multis viventibus esse non dubito, et in omnibus præter hominem probabilissimum censo, 455—thinks that the divisibility even of the souls of perfect animals can be maintained, 445 *n.*—While supposing some souls to be divisible, he admits that this divisibility does not necessarily proceed from their being dependent on matter, 459 *n.*—From the fact that the object of the intellect is "*being*" in so far as being or in so far as truth," he concludes that the intellect is a spiritual power, and distinct from all corporeal organs, 628 *n.*—With St. Thomas, he adduces man's free-will as a proof of the simplicity of the soul, 632—and refers to passages from Platonic philosophers in confirmation of the same, 634.—He admits in the separated soul a "certain natural aptitude" to be re-united to the body, 701 *n.*

SUIDAS (975-1025). He refers to Hermias as being one of those who took the nature of the moral good for which man is made as an indubitable proof of the immortality of the soul, 725 *n.*

Appendix. He certifies that Phercydes had access to certain mysterious books of the Phœnicians, 11.

SUSO (Henry) (.....-1365). He proves the immortality of man's soul from the divine element contained in his reason, 721 *n.*

SWAMMERDAM (John) (1637-1680). Mentioned at 399.

SWIETEN (Van) (1700-1772). He affirms that a small dose of scammony is enough to at once coagulate the blood, 586.

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TAMUS (A Buddhist). *Appendix.* His reply to an Indian King as to what *Ātman* was, 151 *n.*

TELESIOUS (Bernardine) (1509-1588). He wrote a book directed to show that "The substance of the soul is the sole principle that governs the entire animal," 520.—Mentioned at 524.

TENNEMAN (William Theodore) (1761-1819). *Appendix.* His description of the system based on Democritus's *εἶδωλα*, 95.—He attributes the ori-

gin of the controversy between the Realists and Nominalists to Porphyry's book *On the Five Voices*, 200 *n.*

TERTULLIAN (Q.S.) (160-245). His wrong view of the nature of the soul validly refuted by St. Augustine, 624.—His proof of the soul's simplicity, 634 *n.*

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THALES (of Miletus) (VII Century B.C.). According to Aristotle, he placed life and intelligence in *continuous motion*, 1365.

Appendix. He placed the principle of all things in water, 11—a belief which he derived from tradition, *ibid.*—and is the founder of the ancient school which took *individual reasoning* for its distinguishing feature, 82.—He took his doctrines from the Phœnicians, 94.

THEMISTIOUS (315-390). *Appendix.* He erroneously charges Empedocles with contradiction, 67 and *n.*—He compares Empedocles's *friendship* to the *concept* of things, 75—and certifies that Empedocles supposed all the elements to be animate, 80 *n.*

THEODORET (393-458). He quotes a verse of Parmenides, 1362—is mentioned at 621, 1725 *n.*

Appendix. He says that Anaximenes, Anaximander, Anaxagoras, and Archelaus, placed the nature of the soul in *air*, 13 *n.*—Mentioned at 22 *n.*, 25 *n.*, 28 *n.*, 32 *n.*, 108 *n.*

THEOPHILUS (St.) (II Century). His interpretation of the words of Genesis: "And the spirit of God moved over the water," 498.

THEOPHRASTUS (. . . -287 B.C.). *Appendix.* He says that the *eternal and immutable world* of Empedocles, far from being mere inactive matter, is an active cause, 86—and proves, against Aristotle, by the authority of Empedocles himself, that matter cannot be the cause of anything, 86 *n.*—Mentioned at 174 *n.*

THOMAS (St.) of Aquin (1226-1274). He holds that the same being which belongs to the whole human compound belongs also to the soul itself, 10 *n.*—He gives an excellent definition of intellectual perception, 53.—According to the Author, the true and logical way by which the sciences must proceed was seen,

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St. Thomas shows that when St. Augustine says that the mind knows itself through itself, he means that it knows itself, through its act, *i.e.*, through the perception of itself, 114.—His teaching on the reflex knowledge that the soul acquires of itself, supposes its immediate self-perception, *ibid.*—He lays it down, with Aristotle, that the knowledge we have of our soul is the principle of all the knowledge we can have of pure spirits, *ibid.*

The Author observes that in his "New Essay on the Origin of Ideas" he has fully explained the doctrine of St. Thomas about the knowledge which the soul has of itself, 114 *n.*—and calls St. Thomas "one of his two great masters," 117.

St. Thomas distinguishes *direct* from *reflex* knowledge, 121 *n.*—says that second acts are virtually contained in the first act, 130 *n.*—finds that it is characteristic of substances to act by themselves, 182 *n.*—explains what the Aristotelians meant by saying that the soul is "the *Act* of the body," 207—cautiously corrects Aristotle's teaching, 223 *n.*—says that there is no substantial form standing between the human soul and first matter, and that man is perfected by the rational soul according to the different degrees of perfection, *i.e.*, so that he may be *body*, and *animate body*, and *rational soul*, 225 *n.*—From this doctrine he draws the conclusion, that the soul is, by its essence, in every part of the body, *ibid.*—He explains, that although the intellectual soul is "*form* of the body according to its essence, it is not so according to its intellectual operation," 228.

He teaches, that in the same way that our intellect is virtually infinite, in that same way it knows the infinite, 237.—His principle, *impossibile est . . . plurium diversorum esse unam formam* is not opposed to the appellation of *form* which the Author gives to ideal being, 238 *n.*—He speaks of a truth which is created; the Author explains this, 238 and *n.*

He says that the intellectual soul virtually contains all that is found in the sensitive soul of brutes, and in

the vegetative soul of plants, 255.—He lays down the important truth, that *Ipsa anima cujus est hæc virtus (intellectiva), est corporis forma*, 276—proves that the intellectual soul is the *form* of the human compound, 289—calls *contactus virtutis* the contact of the percipient with the perceived, 293.

He somewhere says that, speaking properly, *feeling* is not *knowing*, 402.

From the fact that the whole soul is in every part of the body he infers its simplicity, 448.—He constantly affirms that it is more proper to say that "the soul contains the body and causes it to be one," than to say the converse of this, *ibid.*—He expounds the argument used by Aristotle in proof of the simplicity of the soul, 454—and proves that the soul is in the entire body and is, with its whole self, in each part of the body, 459 *n.*—His explanation of the multiplication of *annellata* when cut into pieces is not dissimilar from that which the Author gives, in general, for all those animals in which feeling is accumulated with an equal intensity in many centres, 488.

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The conditions necessary to constitute *body* are force and extension, 273.—Aristotle and the Schoolmen observed that the condition and force of bodies is so limited that it admits only of certain modifications and passions which mutually exclude one another, 633.—The determinations of quantity, shape, quantitative numerosness, and sensibility are so many conditions which constitute the *form* of body, 790.—These determinations may vary, but in every case some or others of them are necessary, 791—and in so far as they are necessary they constitute the *substantial form* of the body conjointly with the act of substance, *ibid.*—but in so far as they are variable they constitute so many accidental forms, 792, 840.—Intrinsic order of being in the corporeal entity, 840, 841.—Order which the various elements of the corporeal nature have among themselves: 1st Force; and Extensive quantity; 3rd

Figure, 793.—Connection of *body* with *being*, 675.—It is the property of the extended, that every part assignable in it is outside of every other, and independent of every other, 443.—To obtain the full concept of body, experience is required, 1135.

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A body is called inanimate when for want of proper organism it gives no sign of life, 531—animate when it gives signs of life, *ibid.*

Perception is our only original and immediate manner of cognizing bodies, 767—hence even when they are separated from our senses we attribute to them the sensible qualities with which we invested them in the act of perception, *ibid.*—Bodies are perceived in two ways, sensitively and intellectually, 1179 *n.*—How a body larger than our own can be perceived, 1241, 1242.—When the identical body is perceived with different sensories, in order that we may have the full idea of that body it is by no means necessary that we should clothe it with *all* its sensible qualities; it suffices that we clothe it with the qualities that are found in any one perception of it, 1378 *n.*—We know that a body, whether presented to us by several perceptions of the same sensory, or by perceptions of different sensories, is the self-same body, from the association of sensations and perceptions which

takes place through the identity of space and through reasoning, 1378 *n.*

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The extra-subjective phenomena of motion are not the phenomena that present themselves to us in the concept of body, 818.—The first phenomenon is the *felt*, in which we perceive the sensiferous, the concept of which is that of an activity exercised on our souls and diffusing itself in the extension of the felt, *ibid.*—Bodies are continually in motion, 901—but their concepts do not contain in them the reason of their movements, 901.—Some philosophers to explain motion, have had recourse to the direct action of God, *ibid.*—Others, with the same intent, have denied the *inertia* of matter, *ibid.*—The Author thinks that motion is produced by a second cause, namely, by the sentient principle, *ibid.*—Another cause of motion is intelligence; hence there is nothing to forbid the supposition, that in producing the motions which take place in the universe there intervene intelligences unknown to us, *ibid.*—To give an adequate explanation of the laws that govern the movements of bodies, it would be necessary to know the laws according to which force operates, 1252 *n.*—*Force*, in bodies, is considered as an immanent act, and *motion* as a transient act, 1253.—Bodies do not pass to their transient acts by themselves, but receive motion and force from the sensitive principle, as they receive existence from the corporeal principle, 1252.—Relation between the corporeal force and motion, 1253–1261.

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What we think in the concept of bodies is a mixture of subjective and extra-subjective, 1386.—The corporeal *being* is thought in *ideal being*, *ibid*.

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757.—There is nothing to forbid the supposition that the foreign force has a spiritual principle, 758.—The sensiferous and the foreign force have an identical substance, 759–764.—The sensiferous and the brute force clothe themselves with the felt, so that the felt, mingling with the sensiferous, gives the concept of *body*, and mingling with the brute force, gives the concept of *matter*, 765–767.

Our extra-subjective body does not enter into the fundamental feeling, nay it is the sensiferous force, foreign and opposed to it, 1242.

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CAUSE. It is called *formal* when it is such as to constitute a being and posit and preserve it in existence, 288—*efficient* when it is such as to cause the being to act, *ibid.*—Relation between these two causes, 289.—An *informing* cause is one thing, and an *active* cause is another, 644 *n.*—It is an ontological principle that "Every cause must produce an effect like itself," 547.

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thing, 39.—St. Thomas distinguishes direct from reflex cognition, 121.—Direct cognition is the criterion of reflex cognition, 118 *n.*

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Man has absolute knowledge in the full sense of the word only when he perceives God Himself, 263.—It is, however, possible to have an absolute knowledge of contingent things also, namely, given that those things were perceived as they are in God’s creative act, *ibid.*—So likewise man has an absolute, though only negative, knowledge of things, when by a sufficiently elevated reflection he removes from the relative knowledge all the *relativeness* there is in it, *ibid.*

Appendix. Every cognition presupposes the existence (possible or real) of the thing known, 139.—The concept of cognition necessarily involves the concept of a cognizable entity logically anterior to the cognition, 140.—It is impossible for us to know a thing except on condition that we know also that that thing is independent of our knowing, *ibid.*—According to Aristotle, there is sensible knowledge, intellectual knowledge of the greater universals, and intellectual knowledge of the lesser universals, 189 *n*.

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D.

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DEMONSTRATION means "reduction of what is believed to be known to the fact of cognition," 43.—When this reduction is made, we no longer simply believe that we know, but we truly know, *ibid.*—All demonstration is reducible to this, *ibid.*

DEVELOPMENT. Every development has, not merely its *matter*, but also its *sufficient* reason. *Appendix*, 163 *n*.

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DISEASE. According to the Author, all diseases may be reduced to irritation, 1965–1970.—What he means by *irritation*, 1966.—Effects of irritation, 1967, 1968.—Health and disease do not depend on the quantity of stimuli but on their opportuneness or otherwise, 1971–1975.—The sphere of opportune stimuli extends more or less according to the health and robustness of the body, and to that special condition which the body receives from habit, 1976.—The character of inopportune stimuli, and that of the irritation or morbid alteration, must be sought in the condition itself of the animal, 1977—not in the excess or defect of stimuli, but in the laws of the alternation of the vital and sensual instincts, of the sensations and organic movements, which take place alternately with a fixed and necessary course, 1980.—A clearer explanation of the difference between excess of stimulus, and inopportuneness of stimulus, 1981.—Disease is characterized by a grievous alteration or disorder in the animal functions, 2049 *n*. — The morbid

capacity does not manifest itself except in *sthenic* diseases, viz., diseases characterized by excess of stimulus, 2093.

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All diseases that admit of cure are healed by means of opportune excretions, 1945.—These are not merely the effect of recovery, *ibid.*—Modern physicians, having reduced nearly all diseases to inflammation, have usually recourse to bleeding, 1946.

DISTANCE is the relation between different points of an extended, 1126.

DIVINE. There is in man something divine, which can only come immediately from God, 648—hence the saying of Aristotle: "Man alone among animals partakes of the divine," *ibid.*—and again: "There is in man something divine," *ibid.*—Only the *object* (ideal being) could be numbered among divine things, 650—hence St. Augustine says that the intellective soul is "nigh to the substance of God," 651—and Claudius Mamertus, that "it is similar to God as the intellectual is to the intelligible," *ibid.*—Malebranche missed the distinction between the concept of God and the concept of what is divine, 2231.

DIVISIBILITY. Whence comes the concept of divisibility, 563.—This word is sometimes taken in an improper sense to signify *multiplicity*, *ibid.*—Divisibility, in the proper sense, is purely and simply a manner of considering belonging to the mind, 563, 564.

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Duration is a participation of God's eternity, and succession is the effect of the limitation and deficiency of creatures, 1155.—The concepts of duration and succession are correlatives, so that the one can neither be known nor exist without the other, 1152.

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The *instant* is but the beginning or the ending of *duration*, 1152, 1363.

E.

ECLECTICS (of Alexandria). *Appendix.*

These philosophers strove to the utmost to make it appear that all antiquity was in favour of their system, 82.—It was not from them, but from his Hebrew preceptor Gamaliel, that St. Paul learnt that "God made visible things from invisible ones," *ibid.*

ECSTASY. The fact of ecstasy proves that man sometimes prefers the delight found in the *direct* life to that of the *reflex* life, 1681.

EDUCATION protects and develops man's *natural regularity*, 1731.

EGO. The *Ego*, *I*, *Myself* is an active principle in a given nature in so far as it has self-consciousness, and pronounces the act of self-consciousness, 55.—In the Anthropology the Author has defined it "A supreme active principle," but within the sphere of human nature, *ibid.*—To the defini-

tion of the *Ego* we might add the qualification *universal principle*, provided we were careful to remark that the *Ego* is not always universal as an *active* principle, but only as a principle, sometimes passive, sometimes active, *ibid.*

The word *Ego* does not express the pure concept of the soul, but it expresses the intellective perception of one's own soul, 61–67.—The Author sums up all the differences which exist between what is signified by *human soul*, and what is expressed by *Ego*, 68.—This word expresses a real subsistent being, and, therefore, a substance, 105—that is, a substance-feeling, in which there is an active principle, feeling and operating, 106—a feeling altogether alien to any corporeal phantasm, 132—a particular *meity*, the *meity* proper to him who pronounces it, 111.—The *Ego* is not the sentient principle, but the rational principle which, after perceiving the fundamental feeling, has, by reflection, acquired consciousness, that is, perceived itself, 1507.—It has no ideal essence, because it is a real, a subsistent, 1347.—It remains identical even when deprived of all acquired modifications, 97.

From the depths of the *Ego* there springs up the affirming activity, 144.—The affirming *Ego* is different from the feelings affirmed, 143—under which are included also the acts of the spirit, *ibid.*, *n.*—The *Ego*, in so far as it is an affirming activity, remains the same, however many and various may be the feelings which arise in it, 143.—The *Ego* that performs one act is the same *Ego* that performs all acts, 636.

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how the identical *Ego* can be the principle of different activities, viz., of the activity of feeling and of the activity of affirming, 144.

Appendix. When the intelligent principle first pronounces the monosyllable *I*, it undoubtedly exists already, 137.—The analysis of the *Ego* shows it to be the result, 1st Of the fundamental feeling, 2nd Of the intuition of the object (being), 3rd Of one or more reflections which that intelligent feeling makes on itself, and, as a consequence, pronounces itself, saying *I*, 161.—The *Ego* involves self-consciousness, *ibid.*—Fichte, bestowing his attention principally on the third of these elements, made the *Ego* essentially conscious, *ibid.*—Schelling, on the contrary, confined his thought to the first, and thus made the *Ego* sometimes conscious, and sometimes unconscious, *ibid.*—Hegel's attention was arrested by the second, and he thus placed the *Ego* in simple knowledge, *ibid.*

ELEMENTS. *Appendix.* Origin of the doctrine which derived everything from the material elements, 8-10.—By *element*, the Ancients understood that which is immutable in things, which was the same as to say their *substance*, 10 *n.*—and for a long time they dealt with material elements only, *ibid.*—not because they denied spiritual elements, but because they gave them but little reflex attention, *ibid.*

The Author thinks that the elements of which Empedocles maintained that the soul was composed were the ideas of the elements, not the material elements themselves, 46.—Reasons of this his persuasion, 47-91.—Exposition of Plato's doctrine about the twofold species of elements, the *real* and the *ideal*, 59-61.

ENNUI. It is a fusion of a great number of exceedingly slight feelings, of each of which, separately taken, we usually have no consciousness, 1910.

EPICUREANS. These philosophers attributed a formative and organizing force to matter without the intervention of the Creator, 473 *n.*—explained all the changes in the universe by the principle of love, by the sympathies and antipathies of things, *ibid.*—and

confounded the concept of what is subjective with the concept of what is extra-subjective, *ibid.*

EQUALITY. The Author hints at the *Law of excluded equality*, 568 *n.*

ERROR has no place in *intellective perception*, but only in *reflection*, 118.

—In every error there is always mixed up a certain amount of truth, 39 *n.*, 403.—The errors of great intellects are only great or subtle truths disguised and imperfect, 645.—How it is possible for man, an essentially rational being, to fall into error, 1705, 1706.—Why the Author attributes to man a faculty of *error* and of *vice*, different from the faculty of knowing, 1429.

ESSENCE is what the mind sees in an *idea*, 18 *n.*—is the act by which being exists in the ideal world, 1339—is the first act with respect to the realization of a being, 1356—belongs to being, 18 *n.*—The essence of all things is in some way derived from being, 18—because the essence of being is in some degree, and in some mode, common to all things, *ibid.*—The essence of being is identical under the two forms of ideality and reality, 77 *n.*—There are two kinds of substantial essences or forms, 52.—It is one thing to know the essence of a thing, and another thing to know its subsistence or reality, 18, 19.—What kind of knowledge have we of the essence of things whose species have never fallen under our senses? 19-22.—What positive knowledge can we have of the essences of things? 25.—The essence of the things of which one speaks is the principle of all reasoning that can be instituted about those things, 107.—The reader is invited to bear in mind what the Author had said regarding the knowledge of essences in the *New Essay on the Origin of Ideas*, 257 *n.*

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already contained as ideal, 1497—but, for man himself, this is not reality until he affirms it, *ibid.*—How we may know whether a given essence can be realized in several individuals or only in one, 1348—and whether there be essences which can allow only of a certain number of individuals, 1349.

Appendix. Essence is that which is intuited in the idea, 50 *n.*—In the essence the substance is seen, 67 *n.*—Ambiguity arising from the Greek *ousia*, which means *essence* as well as *substance*, 178 *n.*—Distinction between essence and substance, *ibid.*

ETERNAL. A being is called *eternal*, when its concept excludes the possibility of succession, 1139.—The eternal is unchangeable, 1140.—Its property is: "to be, its identical self, present to many successive entities," 1183.

ETHICS. The science of Ethics treats of human actions, good or bad, by referring them to the laws of morality, 730.

EXCITABILITY. Remarks on Brown's *excitability*, 1815.—Reasonable sense in which it may be understood, *ibid.*—Why the Author calls it extra-subjective, 1816.—What relations it has with the divers activities of the vital principle, 1816–1819.—It is subject to the laws described by Doctor Medici, 1815 *n.*

EXCITATION. It cannot take place except there be a suitable organization in the animal, 2080.

EXISTENCE. It is objective, although the thing to which it relates be the subject; and this is true with respect no less to possible than to real existence, 868.—If we did not join existence, either possible or real, to the subject, this subject would remain altogether unknown, *ibid.*—Existence in the intelligent spirit does not cancel existence *in se*, but, on the contrary, constitutes it, 1339.

EXTENDED. By *extended* is meant the body occupying a part of space or extension, 1132.—The extended can exist only in the simple, 1127, 443.—It has no unity in itself, 443.—The only unity discoverable in it consists in *continuity*, 1136.—It acquires this continuity from the sensitive principle, 1543.—The continuous ex-

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EXTENSION. The Author defines it as "the mode of the corporeal feeling," 775.—Its essence, 225.—What its concept results from, 1122.—It can exist only in the simple, 824, 225 and *n.*, 775.—The Ancients had a glimpse of this truth, 225 *n.*—Extension is one thing, and the *extended* is another, 1132.—By extension is meant the same thing as space considered independently of bodies, *ibid.*—Extension or space, whether full or void, exists equally *ibid.*—It is continuous and indivisible, 1368.

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Extension has this property, that every part of it is outside of every other, 1127.—This property, when considered in bodies, is called impenetrability, *ibid.*—hence the expression "One body contains another body" is not correct, *ibid.*—Extension may, by the imagination, be divided into parts, 780.—Figure is in extension, as limits are in the limited, 793.

The extension of our body is conceived in two modes: as material and extra-subjective, and as corporeal and subjective, 225.—The first of these concepts is reducible to the second *ibid.*, *n.*

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F.

FACT. This word can be taken in several meanings, 1501.—In the most obvious meaning, *facts* are the terms of that knowledge which is acquired by *affirmation*, *ibid.*—The *reasons* of facts form a third species of cognitions, *ibid.*—If the word *fact* is taken in a most extensive sense, then we

must distinguish between, 1st *real* facts, 2nd *ideal* facts, 3rd *relations* existing between the two, *ibid.*

FACULTY. A *faculty* consists in a fundamental act antecedent to all its particular acts, 103.—*Faculty of fiction* or *intellectual creation*, 1607.

FAITH. This word, which means *persuasion*, was used by the Ancients in various significations, 1048 *n.*—How it was understood by Plato and by Parmenides, *ibid.*—What is *rational* faith, 1046.—Even positive faith in Divine things reduces itself to rational faith, 1047.

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much of subjective knowledge there is in the forms with which the Aristotelian School considered matter to be vested, and how much of absolute knowledge, 1637-1650.

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G.

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of the Author, all generation would be reduced to a single law, 694.—Two objections against this law are solved, 607, 608.

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God's existence may be deduced *a priori* from universal being, essentially intelligible, 872—and may also be demonstrated from the existence of transient acts, 1226.—This latter proof has the advantage of showing directly that God is an *immanent act*, 1227.—The proof from the fact of motion, which St. Thomas took

from Aristotle, derives its force from the principles laid down by the Author regarding the nature of immanent and transient acts, 1226 *n*.—Aureolus and others maintain that this demonstration, drawn from the necessity of an *immobile* to move mobile things, does not strictly prove God's existence, but only that of a world-soul, 1232 *n*—and Cardinal Gaetano agrees with him, *ibid*.—The entire human race ascends by a spontaneous integration to a rational belief in the existence of God, 1046.

God is not the object of man's natural intuition, 1316.—To say that man sees God by nature is a manifest error against the Christian Faith, 1394, 1660, 1664.—If man saw God by nature, he would also necessarily see two things at once: 1st That the ideal is contained in the real; and 2nd That to consider it, by means of a judgment, as separate from the real, is an absurdity, 1316.—The invention of the word *idea*, and its constant use, overthrows the error of those who attribute to man, in this life, the intuition of God Himself, 1343.—Whoever says that *ident being*, which informs our reason, is God, falls into most grievous errors, 1352.—To maintain that God can be seen without His Essence being seen, is to maintain an absurdity, 1445 *n*.—If the vision of God were given to a man in this present state of existence, it would cause him to die, 692 *n*—not, however, if his body were perfect, *ibid*.—There is no absurdity in saying that the Infinite Real can be an object of vision, since it is the identical, perfectly simple one that is seen in the ideal, 1385—1387.—From the perception of the Infinite Real there arises in the perceiving subject a feeling of jubilation and felicity altogether unlike any other feeling, 1388.—Why it is perfectly true to say that the Blessed in heaven perceive God *entire* but not *entirely*, 1389—1391.—In the beatific vision, the *nexus* of identity between the subsistence and the essence of being will be seen, 1394.—The essence of being pure and simple cannot be called the Essence of God, *ibid*.

How God acts in intelligent creatures that have perception of Him, 1390—1392.—His action is always a

creative action, 1390.—Reason of this, *ibid*.—Creation is an act of God's practical reason, 1155.—He causes things to subsist by an act analogous to that whereby man thinks them as subsistent, *ibid*.

God cannot, like contingent things, be thought in a merely *ideal form* and as *possible*. Either He must be thought as subsistent, or else it is not God that is thought, 1352.—His Feeling and His Intelligence are known through analogy, 22.—Concept of an Infinite Being, *ibid*.

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In God, the distinctions of generic essence, abstract specific essence, full specific essence, do not exist, 1663.—Each of those perfections which, outside of God, are separate, in God are God Himself, *ibid*.—Godhead, which is conceived by us as an abstract form, in God is the subsistent God Himself, *ibid*.—God's subsistence in so far as it makes itself known by its own light, is the law imposed on the practical reason, and, in so far as it lives complete in itself, is the real object of the same practical reason, 1437.

The word *God* does not express a species, but a true subsistent being, 1663.—In the Hebrew tongue, the word *God* was added as a superlative to all words, for example, "Mountain of God," "Prince of God," etc., to signify a very high mountain, a great prince, etc., 1576.—The same thing is done among the Arabs and other Orientals, and it occurs in Euripides, *ibid*.

We may say with truth, that God (Subsistence, Subsistent Person) generates God (another Subsistent Person); but we cannot say that Godhead (the Essence) generates Godhead (another Essence), 1662.

God does not communicate Himself to any power but that of intellect, which is the "power of the vision of being," and has a capacity which extends to the infinite, 1001.—God by communicating Himself to the soul gives the soul a new power infinitely different from all other powers, 1004.—To explain how the soul may receive in itself the action of the Divine Essence is not so difficult as to explain how the Divine Essence can act in the soul, 1005.—Although God's action, considered in Him, is the Divine Essence itself, nevertheless, outside of Him, it produces only a limited effect, *ibid.*—The Divine Reality, to be understood by man, has no need of any other power than the intellect, which intues ideality (ideal being); only that in this case the intellect becomes perfected, elevated, because gifted with the perception of the Absolute Reality, 1018.

GOOD. Why Being and Good are convertible terms, 330.—What is the good and the evil of the human subject, 331.—Whence does the good and the evil of the human subject arise? 335.—Whence does that complex good or that complex evil arise, over which man rejoices or grieves? *ibid.*—Though in finite intelligent beings the moral order is not necessarily found in act, they always have the power to attain it, 953.—Moral good is infinite in its nature, 1421.—Moral good and moral evil are always of a twofold nature, that is, they are at once psychological and ontological, 1433.—How man can be seduced into doing evil, 1425.—Moral evil cannot be fully repaired by the mere correcting of the disorder caused in the practical activity, 1432.—The ontological order must, further, be restored, *ibid.*—For a similar reason, the subject of the moral good must receive an ontological reward, *ibid.*—Which reward varies according to the particular being whose claim to respect has been practically recognized, 1433.

H.

HABIT is a certain acquired and accidental disposition of the soul, where-

by the soul is placed in a better or worse condition, and is better able to act in a given mode, 909.—It may also be defined as "The disposition of a power to act in a given way," 1092.—The word habit has two principal meanings, 910—if it is considered with relation to the essence of the soul, it is that which adds something for better or for worse to its natural state, 911—if it is considered with relation to the powers of the soul, it is a disposition which imparts greater facility of acting in a given way, good or evil, 912.—As an example of the first meaning we have the condition of the soul rendered morally better by a virtuous act, and *vice versa*, 913—as examples of the second meaning, we have all the arts, which are simply acquired dispositions enabling the soul to act easily in a given mode, *ibid.*—To the intellectual and moral soul, habit belongs in both meanings, but to the purely sensitive soul it belongs in the second meaning only, 914.

Origin of habits, 918–927.—The more frequent are the acts, the greater does the habit become, 919.—How the habits of the sensitive faculties are formed, 921, 922—how those of the rational faculties, 924–927.

The classification of the habits of the powers follows the classification of the powers themselves, 916.—Habits are divided according to the powers or faculties which they modify and actuate, 1092—and these, classified according to their effects, may be reduced to two groups: those which produce effects within the subject, and those which produce effects outside the subject, *ibid.*—hence two groups of human habits, 1093—the moral habits, good and bad, 1094—the rational habits, of memory, the sciences, prudence, etc., *ibid.*—but in so far as the rational power moves bodies, it gives rise to the habits of the liberal and mechanical arts, to the vicious movements of one's body, etc., 1095.

Habits are activities kept up by the terms of the soul, 928—and their multiplicity does not interfere with the unity of the soul, *ibid.*—Their source lies in the activity proper to the principle already constituted, 937.—They arise from that residue of

activity which remains in the soul after the accidental acts have ceased, 944.

To come forth into act, habit requires an excitation, 1287.—Habit is a power of acting so precise and determinate, that the most trifling difference in the circumstances stops its operation, 1921.—This is seen, *e.g.*, in the habit of memory, *ibid.*—Although habit naturally perfects the power to which it belongs, it sometimes indirectly causes an injury and disorder in the subject, 917.

The Author says that he does not wish to enter into the question "Whether there are habits inherent in, or even essential to, human nature," 909 *n.*

The union of the intellective soul with God produces in it supernatural habits, 915.

Habit consists in that peculiar disposition in virtue of which a sensitive or rational agent finds it easier to repeat acts previously performed, than in performing new ones, 1735.—Acting through habit is like continuing the act that was done before, *ibid.*—Habit cannot be explained except by having recourse to the unity of the acting subject, 1736—it depends on the law of spontaneity, 1735.

There are two kinds of habit, the one passive and the other active, 1982—the first diminishes the intensity and vividness of new impressions, and the second increases the action by rendering it easier, more perfect and more intense, *ibid.*—The laws of these two kinds of habit, although mutually opposed, are in mutual accord in this sense, that the law which governs the first kind accounts, in great part, for that which governs the second, 1985.—The law by which the active habits of the animal principle are governed, explains the facility with which inflammations are reproduced, 1986.—The force of habit to which the sensual and the vital instincts are subject has an immense influence over the sanitary condition of the body, 2139.—Why dwellers on mountains, where the air is dry and highly oxygenated, suffer from fevers and inflammations when passing to reside in low places where the air is damp and dense, *ibid.*—

What studies would be necessary for explaining the different diseases which manifest themselves with the changing of habits, 2140.

No habitual tendency is painful so long as it makes no attempt to find satisfaction, 711.

HARMONY results from unity and plurality, 1545.—Unity is posited by the soul, and therefore is a psychological element, while plurality is given to the sensitive soul by its term, and is therefore a cosmological element, *ibid.*—Harmony in the sphere of animal feeling may, in a certain sense, be called a union of nature and as it were a birthday embrace between the soul and the world, *ibid.*—John Kepler demonstrated that all harmony perishes if we take away from the soul either the sensitive or the intellective spirit, 1726 *n.*—Harmony is altogether psychological in its origin, 1591, 1596.

The Author proposes the question as to "How the sensitive soul is partly the source of the harmony found in animality," 1543—also the question, "What part does the soul in so far as rational posit in the constitution of harmony," 1726.

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Appendix. There is no merely objective harmony; every harmony consists in a relation of the object to the subject, and resides in the subject, 114.

See RATIONAL PRINCIPLE, and REGULARITY.

HEART. In proportion as this organ is more fully and perfectly developed, it renders the individual more susceptible of feelings analogous to benevolence and charity, 2083 *n*.

HEAT. *Appendix*. The ancient philosophers placed the nature of the soul in fire, and why, 17.—Physicians likewise placed the vital principle of the animal in fire, *ibid*.—Singularly enough, this opinion found favour even with some ecclesiastical writers, *ibid. n*.

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Each couple of actions of the vital and sensual instincts is called by the Author *a link in the zoetic course*, 1994.—The first link is composed, 1st of the first sensations, 2nd of the movements continued or produced by the sensual instinct in consequence of those sensations, 2043.—Three causes of the variations of the movements which produce the said sensations, 2044—consequently, of the differences in the zoetic courses, *ibid.*—Anteriorly to the first link, there is another couple of phenomena, 2043.

The zoetic course is roused by external stimuli, 2045–2051.—It depends on the first sensations, 1999.—Changes which it undergoes through poisoning, 2068 — and through the various secretions, 2070 —and through the loss of a member, 2071.

In the system of those who believe all the elements of bodies to be animate, the zoetic course constitutes the specific difference between what we usually call *brute* bodies, and *animals*, 2042.







